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July 15, 2016

Mr. Gary Miller, Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: San Jacinto River Waste Pits Superfund Site
Monthly Progress Report No. 80 June 2016/July 2016
U.S. EPA Region 6, CERCLA Docket No. 06-03-10 UAO for RI/FS

Project Number: 150557-01

Dear Mr. Miller:

Attached please find the Monthly Progress Report No. 80 for June 2016/July 2016. This report was prepared on behalf of the International Paper Company and McGinnes Industrial Maintenance Corporation for the San Jacinto River Waste Pits Superfund Site in Channelview, Texas. Should you have any questions, please contact me at (228) 818-9626 or email me at dkeith@anchorqea.com.

Sincerely,

David C Keith

David C. Keith
Project Coordinator

cc: Steve Tzhone, USEPA
Anne Foster, USEPA

Monthly Progress Report No. 80 June 2015/July 2016
Submitted July 15, 2016
San Jacinto River Waste Pits Superfund Site
USEPA Region 6, CERCLA Docket No. 06-03-10 UAO for RI/FS
Channelview, Texas

The Unilateral Administrative Order (UAO) for the Remedial Investigation/Feasibility Study (RI/FS) at the San Jacinto River Waste Pits Superfund Site (Site) in Channelview, Texas, (USEPA Region 6, CERCLA Docket No. 06-03-10 UAO for RI/FS) was issued on November 20, 2009. The Respondents include International Paper Company (IP) and McGinnes Industrial Maintenance Corporation (MIMC).

A. Summary of Work Performed – June 2016/July 2016

The Respondents, Anchor QEA, and Integral Consulting completed work on the following tasks:

- Submitted Monthly Progress Report No. 79 to the United States Environmental Protection Agency (USEPA) on June 15, 2016.
- Continued to coordinate with USEPA on its review of alternatives presented in the Draft Final Interim Feasibility Study (FS).
- Completed retrieval of groundwater samplers the week of June 11, 2015. Note, the sampler for well SJMW013 will be retrieved during the week of July 18, 2016, based on it having been installed later than other samplers.
- Provided USEPA a detailed schedule on July 1, 2016 for completing surface water and remaining tissue and sediment sampling.
- Provided USEPA an updated project database on July 11, 2016.
- Performed surface water sampling the weeks of July 1, 2016, and July 10, 2016.
- Provided USEPA a memorandum regarding final armored cap porewater sampler intervals on July 14, 2016, based on USEPA Dive Team sampler installation, and coordinated with USEPA on the porewater sampler retrieval scheduled for the week of July 18, 2016.
- As requested by USEPA, participated in a call with USEPA on July 14, 2016 to discuss performing a potential early action at the Site.

B. Summary of Agency Communications

The written communications between Respondents and USEPA subsequent to the issuance of the UAO are summarized in the attached Table 1.

C. Summary of Sampling Results

Received results for quality control samples for the groundwater and one porewater sampler. Table 2 provides a listing of the data files provided on CD.

D. Problems, Delays, and Solutions

San Jacinto River Fleet Operations (SJRF)

As summarized in previous monthly reports for the RI/FS, the Respondents continue to be concerned about the potential impacts of the SJRF operations in the immediate vicinity of the Site. On January 2, 2013, Respondents submitted their comments on the Revised SJRF Draft Sampling and Analysis Plan via email to USEPA. The Respondents will continue to work with USEPA on this issue. Respondents will also continue to work with USEPA and SJRF, if necessary, should there be a need for access to the SJRF property for purposes of RI/FS activities. Those discussions would be based on prior communications in that regard, which are described in the monthly reports submitted under the Administrative Settlement Agreement and Order on Consent for Removal Action for the Site.

Field Sampling Schedule

On August 6, 2015, USEPA directed the Respondents to revise the Final RI/FS Work Plan, dated November 2010, or to prepare addenda to the Work Plan to address USEPA's request for additional sampling and analysis as part of the investigation of the Site. On September 30, 2015, the Respondents provided USEPA with a schedule for completing sampling and analysis plans (SAPs) and conducting associated field work, data analysis and reporting to fulfill USEPA's directive. The USEPA approved the schedule for submittal of draft Sampling and Analysis Plans (SAPs) relating to the future sampling at the Site on October 8, 2015. Porewater and sediment SAPs were submitted on October 23, 2015, and groundwater and surface water SAPs were submitted on November 20, 2015. The Respondents subsequently revised the SAPs in response to USEPA comments, and the revised SAPs have been approved by USEPA. The completion of the work required by the SAPs was partially dependent upon the USEPA Dive Team installation of porewater samplers, which was completed the week of May 16, 2016. The surface water SAP also defines specific flow conditions under which surface water sampling can occur, and the rain events in May and June of 2016, resulted in river flows that exceeded those specifications. In addition, some of the planned data collection for sediments and tissue were not completed because of Site conditions at the time such sampling events were scheduled to occur. The Respondents are working with USEPA on a weekly basis to coordinate completion of the surface water, sediment and tissue sampling as quickly as possible and provided USEPA an updated schedule for completing that work on July 1, 2016.

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USEPA Region 6, CERCLA Docket No. 06-03-10 UAO for RI/FS
Channelview, Texas

E. Projected Work for Next Two Reporting Periods – July 2016/September 2016

The Respondents, Anchor QEA, and Integral Consulting expect to conduct the following tasks during the remainder of July 2016 through September 2016:

- Continue to participate in and support USEPA on community awareness and outreach issues.
- Continue, in light of USEPA's decision to assume responsibility for the FS (as communicated by USEPA's Remedial Project Manager to Respondent's Project Coordinator in a phone call on April 5, 2016), to address any questions and comments of USEPA regarding the Draft Final Interim FS as they arise and to support USEPA as needed as it finalizes the FS.
- Completion of field work on groundwater, porewater, surface water, sediment, and tissue SAPs.
- Perform laboratory coordination, data validation and data management tasks with new data as it is received.
- Evaluate and respond to USEPA's request that Respondents perform a potential early action.

F. Schedule

The Draft Final Interim FS was submitted to USEPA on March 21, 2014, and reviews of the Draft Final Interim FS by USEPA and the USACE have been ongoing.

A schedule was provided to USEPA for review on May 12, 2016 and was attached to Monthly Progress Report No. 78 submitted on May 16, 2016. That schedule provided milestones related to the sampling and analysis plans implementation, data analysis and reporting, subject to changes related to rain and flow events in the San Jacinto River watershed and the need to adjust deadlines as a result of conditions encountered during field work, the timing of responses and approvals on the part of USEPA and other circumstances. For purposes of this report, that schedule has been updated based on sampling completed and other activities that have occurred during the last 30 days and is attached (Updated Schedule). Milestones and deadlines in the Updated Schedule are subject to changes related to rain and flow events in the San Jacinto River watershed and the need to adjust deadlines as a result of conditions encountered during field work, the timing of responses and approvals on the part of USEPA and other circumstances.

Monthly Progress Report No. 80 June 2016/July 2016
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Channelview, Texas

On April 5, 2016, USEPA Remedial Project Manager notified Respondent's Project Coordinator that USEPA would be finalizing the FS for the Site. The final RI/FS schedule will depend on completion of the work associated with the SAPs, and USEPA's completion of the FS.

Prepared by:
David C. Keith
Project Coordinator

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
12/4/2009	Required Notifications pursuant to Paragraphs 51 and 75 of UAO	None	NA	Provided notice of intent to comply and "sufficient cause" defenses and identified Project Coordinator
12/7/2009	Copies of Letters to McGinnes Heirs Regarding Site Access	None	NA	
12/10/2009	Draft Scoping Meeting Minutes	None	NA	
12/14/2009	Copy of Response from Big Star Barge & Boat Company Regarding Site Access	None	NA	
12/15/2009	Monthly Progress Report No 1	None	NA	
12/18/2009	Status Report on Site Access	1/12/2010	Actions to date did not constitute "best efforts" to gain access	Respondents and EPA spoke regarding the matter in further detail on 1/8/10
12/21/2009	HASP	None	NA	
12/21/2009	Anchor QMP	None	NA	
12/21/2009	Integral QMP	None	NA	
1/7/2010	Request for comments regarding access agreement for Big Star Barge & Boat Company	None	NA	
1/11/2010	Proposed Draft AOC for time critical removal action	1/12/2010	Respondents' proposed AOC has been forwarded to headquarters and Philip Allen for comment Time critical removal action requires imminent and substantial endangerment finding	
1/12/2010	Copy of Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
1/12/2010	Notice of UAO Deficiency	None	Actions to date did not constitute "best efforts" to gain access	
1/13/2010	Draft Sediment Sampling and Analysis Plan Minutes	None	NA	
1/13/2010	Draft Database and Data Exchange Minutes	None	NA	
1/15/2010	Monthly Progress Report No 2	None	NA	
1/15/2010	Update Regarding Respondents' Efforts to Obtain Access Agreement, Response to Letter from Barbara Nann and Request for Extension	1/21/2010	Efforts to obtain Site access are "encouraging "	
1/20/2010	Correspondence from Port of Houston Authority regarding access	None	NA	
1/21/2010	Copies of Site Access Letter From Attorney for McGinnes Heirs	1/22/2010	EPA requested another copy of the letter	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
1/21/2010	Correspondence with Port of Houston Authority Regarding revised fence alignment	None	NA	
1/22/2010	Copies of Site Access Letter From Attorney for McGinnes Heirs	None	NA	
1/25/2010	Copies of Letters Sent to Gary Gladfelter and Tanya Ammons Regarding Site Access	None	NA	
1/27/2010	Draft 1/20/10 Alignment Meeting Minutes	None	NA	
1/27/2010	Copy of Correspondence with Big Star Barge & Boat Company Regarding Site Access	None	NA	
1/27/2010	EPA's response to Respondents' proposed AOC regarding Time Critical Removal Action	None	EPA will give Respondents additional time to respond as to whether Group wants to enter into AOC for Site stabilization	
1/29/2010	Copy of Revised Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
2/2/2010	Copy of Correspondence with Big Star Barge & Boat Company Regarding Site Access	None	NA	
2/4/2010	Respondents' proposed changes/comments on proposed AOC for Time Critical Removal Action	3/5/2010	Awaiting finalization of action memo for site stabilization before making additional changes to the AOC for site stabilization	
2/10/2010	Draft Memorandum San Jacinto River Waste Pits Superfund Site Time Critical Removal Action	Non	NA	
2/11/2010	Copy of Revised Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
2/11/2010	Copy of executed Consent Form for Site Access from Big Star Barge & Boat Company	2/17/2010	EPA approved of the form and will await an access agreement allowing for the RI/FS to take place	
2/15/2010	Monthly Progress Report No 3	None	NA	
2/16/2010	Draft Sediment Sampling and Analysis Plan/QAPP	None	Comments received March 10, 2010	
2/16/2010	Correspondence to EPA regarding update to Respondents' efforts to obtain access to the site	None	NA	
2/17/2010	Submitted the Agency Review Draft of the Quality Assurance Project Plan and Field Sampling Plan for Sediment Sampling	Consolidated comments received on March 10, 2010	Follow up meeting conducted with EPA, TCEQ and Trustees on March 16 and comment/response table developed for submittal with Draft Final report	Draft Final document submitted on 4/9/2010

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
2/18/2010	Samplıng Plan for sedıment samplıng on February 17, 2010	2/19/2010	EPA wıll forward for revıew to EPA's financıal assurance expert	
2/18/2010	Correspondence from MIMC regardıng financıal assurance bond	2/19/2010	EPA wıll forward for revıew to EPA's financıal assurance expert	
2/19/2010	Copy of presentatıon regardıng Short-Term Communıcatıons Plan	None	NA	
2/22/2010	Letter to Barbara Nann regardıng MIMC's responsıbılıty to provıde access to the V C McGınnes, Trustee tract	None	NA	
3/18/2010	Draft Sedıment Samplıng and Analysıs Plan Comment Revıew Meetıng Mınutes March 16, 2010, TCEQ, Austın Texas	None	NA	
4/7/2010	Draft Fıeld Samplıng Plan and Job Safety Analyses for the TCRA samplıng	None	NA	Thıs samplıng was requested by EPA ın an emaıl on March 26, 2010
4/9/2010	Submıtted the Draft RI/FS Work Plan and SLERA	June 3, 1010	Comments receıved from EPA by emaıl	
4/9/2010	Submıtted the Draft Fınal of the Qualıty Assurance Project Plan and Fıeld Samplıng Plan for sedıment samplıng	None	NA	
4/15/2010	Submıtted Monthly Progress Report No 5 on Aprıl 15, 2010	None	NA	
		4/26/2010	Approval letter from EPA for ımplementatıon of the RI/FS Sedıment QAPP/SAP	Agency requested replacement pages for Fınal QAPP/SAP
4/30/2010	Submıtted replacement pages to EPA, TCEQ and the trustees for the Fınal SAP/QAPP on Aprıl 30, 2010	None	NA	
5/11/2010	Submıtted the Draft Chemıcal Fate and Transport Modelıng Study desıgn and samplıng and analysıs plan addendum on May 11	None	NA	
5/14/2010	Submıtted a Soıl Samplıng and Analysıs Plan for the TxDOT rıght-of-way to TxDOT and EPA	None	NA	Submıtted to TxDOT as part of effort to obtaın access ınto the TxDOT rıght-of-way for RI/FS and TCRA actıvıtıes

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
5/17/2010	Submitted Monthly Progress Report No 6 on May 17, 2010	None		
5/21/2010	Submitted revised TxDOT right-of-way sampling and analysis plan	None		Comments received from TxDOT on May 25, 2010
5/25/2010	Submitted email outlining sediment sampling and analysis deviations	5/26/2010	EPA agreed to recommendations and asked that human health locations on west bank be reconsidered	Human health locations on west bank moved with EPA concurrence in email on May 28, 2010
5/27/2010	Submitted revised TxDOT right-of-way sampling and analysis plan	None		TxDOT approved the revised sampling and analysis plan on June 11, 2010
5/28/2010	Submitted email summary of VOC data from sediment sampling	5/28/2010	EPA concurred that no further VOC analyses were required	
6/7/2010	Response to 6/4/10 email from Barbara Nann regarding access for 3 soil samples in western impoundment	None		
6/11/2010	Submitted Draft Tissue Sampling and Analysis Plan and Draft Technical Memorandum on Bioaccumulation Modeling on June 11, 2010	None		
6/15/2010	Submitted Monthly Progress Report No 7 on June 15, 2010	None		
6/25/2010	Submitted comments and responses on Draft RI/FS Work Plan	None		
7/9/2010	Submitted Revised Draft RI/FS Work Plan	7/12/2010 8/26/2010	Email from B Nann forwarding edits to RI/FS work plan Email from Steve Tzhone with additional comments concerning Site History and soil sampling in the area of former impoundments south of I-10	
7/15/2010	Submitted Monthly Progress Report No 8 on July 15, 2010	None		

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
7/27/2010	Provided EPA a draft response to comments on the Draft Fate and Transport Memorandum Review	8/12/2010	Email from S Tzhone forwarding two additional comments on the Fate and Transport Modeling Memorandum	
8/16/2010	Submitted Monthly Progress Report No 9 on August 16, 2010	None		
8/17/2010	Submitted revised response to comments on the Fate and Transport Sampling and Analysis Plan	8/31/2010 9/7/2010	Email from S Tzhone approving the revised response to comments and authorizing submittal of the Final Draft document Email from S Tzhone providing comments from USGS on sampling and analysis plan and direction to incorporate comments as EPA comments by phone Comments need to be addressed prior to implementing field work	
8/18/2010	Submitted Draft Addendum to the Sampling and Analysis Plan (SAP) Sediment Study	8/23/2010	Email from S Tzhone approving the addendum SAP and authorizing sampling in Cedar Bayou	
8/18/2010	Submitted revised response to comments on the Bioaccumulation Modeling and Tissue Sampling and Analysis Plan	8/31/2010	Email from S Tzhone approving the revised response to comments and authorizing submittal of the Final Draft documents	
8/19/2010	Submitted Draft Meeting Minutes - Agency Comments on Tissue SAP and Technical Memorandum on Bioaccumulation Modeling	None		
9/3/2010	Submitted Draft Final RI/FS Work Plan	10/7/2010	Letter of deficiency from S Tzhone requiring Respondents to incorporate EPA's Comment Number 4 (sampling of south impoundment) provided to the respondents on August 26, 2010, as part of the RI/FS	Respondents have 14 days to comply from the date of the letter

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/9/2010	Submitted letter to Steve Tzhone regarding Site Warning and Protective Measures	9/1/2010	Email from S Tzhone approving the proposed scope of work for additional fencing and signs and requesting clarification and final design for impoundment signs and buoy placement	
9/10/2010	Submitted letter to Steve Tzhone and Barbara Nann concerning MIMC's participation in soil sampling in the area of former impoundment south of I-10	10/8/2010	Letter to MIMC counsel from B Nann expressing disagreement with MIMC's letter and reiterating position that south impoundment must be sampled	
9/10/2010	Submitted the Draft Soil Sampling and Analysis Plan for the RI/FS	None		
9/10/2010	Submitted Draft Final Tissue SAP, and Draft Final Technical Memorandum on Bioaccumulation Modeling			
9/15/2010	Submitted Monthly Progress Report No 10 on September 15, 2010	10/7/2010	Letter of deficiency from S Tzhone requiring Respondents to submit all raw data with monthly progress reports	Respondents have 14 days to comply from the date of the letter
9/16/2010	Submitted letter outlining proposed buoy and warning signs at impoundments	9/16/2010	Email from S Tzhone approving final design for signs and buoy system	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/23/2010	Submitted an email with clarifications required for the final Sampling and Analysis Plan Tissue Study on the following topics Laboratory Certification, selection of tissue analytes, and a few editorial changes to the tables and text re lipid analysis methods	9/24/2010	Email from Steve Tzhone indicating that EPA agreed with the response to EPA's concerns about laboratory certification, and agreeing to the proposed edits EPA approved the final Tissue SAP and Technical Memorandum on Bioaccumulation Modeling on September 24, 2010	
9/28/2010	Submitted Final Sampling and Analysis Plan Tissue Study and Final Technical Memorandum on Bioaccumulation Modeling on September 28, 2010	9/29/2010	EPA approved of the Tissue SAP Addendum	
9/30/2010	Submitted Draft TxDOT Right-Of-Way Data Report on September 30, 2010	None		
10/1/2010	Submitted Draft Groundwater QAPP and FSP on October 1, 2010	None		
		10/7/2010	Email from B Nann regarding status of access efforts	
		10/11/2010	Email from B Nann encouraging diligent efforts on access	
10/13/2010	Email to B Nann regarding the status of access efforts and need for a conference call between TxDOT, EPA and respondents to discuss	10/14/2010	Email from B Nann agreeing to conference call	
10/15/2010	Submitted Monthly Progress Report No 11 on October 15, 2010			
10/18/2010	IP Letter responding to NOD regarding south area investigation			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
10/20/2010	Submitted revised monthly reports for June, July, August, and September 2010 and accompanying raw data on discs			
10/21/2010	MIMC letter responding to NOD regarding south area investigation			
10/21/2010	Joint letter responding to NOD regarding raw data			
10/21/2010	Submitted Draft Final RI/FS Work Plan	11/2/2010	Draft Final RI/FS Work Plan approval letter from S Tzhone provided by email	
		10/25/2010	Email from B Nann approving use of TxDOT right-of-way for gravel road	
		10/29/2010	Received certified letter from B Nann regarding UAO deliverables	
11/1/2010	Certified letter to B Nann from IP counsel detailing Respondents' efforts to obtain Site Access Agreements with TxDOT and Big Star Barge and Boat			
		11/2/2010	Received certified letter from B Nann regarding best efforts for obtaining Site Access	
		11/3/2010	Email from S Tzhone to D Keith expressing concerns with field sampling procedures used during the week of October 25, 2010	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
11/5/2010	Email from D Keith to S Tzhone regarding compliance with UAO deliverable procedures and proposed future deliverable procedures	11/5/2010	Email from S Tzhone to D Keith concurring with proposed procedures	
		11/8/2010	Email from B Nann concurring with proposed procedures	
11/8/2010	Email from D Keith to S Tzhone concerning revisions to field procedures to be used in the future			
11/8/2010	Re-submitted Revised Draft Groundwater Study SAP	11/22/2010	Email from S Tzhone with comments on Groundwater SAP	
11/8/2010	Re-submitted Draft Soil Sampling and Analysis Plan	11/22/2010	Email from S Tzhone with comments on Soil SAP	Additional comments received from S Tzhone on 11/30/2010
11/12/2010	Certified letter to B Nann from Al Axe reiterating and detailing Respondents' efforts to obtain Site Access Agreements with TxDOT and Big Star Barge and Boat			
11/15/2010	Submitted Monthly Progress Report No 12 on November 15, 2010			
11/30/2010	Submitted Draft Final Comment/Response Matrix of the Fate and Transport Modeling Memorandum	12/8/2010	Email from S Tzhone approving the Draft Final Comment/Response matrix	
11/30/2010	Transferred preliminary Big Star soils data to USEPA as a mix of excel and PDF files via email, and then submitted the complete preliminary invalidated data to USEPA via email December 1, 2010			
12/6/2010	Submitted Draft Comment/Response Matrix for Groundwater SAP	12/14/2010	Email from S Tzhone approving the Draft Final Comment/Response matrix	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
12/9/2010	Submitted Draft Comment/Response Matrix for Soil SAP			
12/15/2010	Submitted Monthly Progress Report No 13 on December 15, 2010			
12/16/2010	Submitted the Draft Final Groundwater Study Sampling and Analysis Plan on December 16, 2010	12/23/2010	Email and letter from S Tzhone approving the Groundwater Study Sampling and Analysis Plan	Requested final copies be provided to remove "Draft" from "Draft Final" - implementation of field work approved
12/17/2010	Submitted the Draft Final Chemical Fate and Transport Modeling Memorandum December 17, 2010	1/10/2011	Email and letter from S Tzhone approving the Chemical Fate and Transport Modeling Memorandum	Requested final copies be provided to remove "Draft" from "Draft Final"
12/17/2010	Submitted an Addendum to the Soil SAP to describe a soil investigation in the area South of I-10 on December 17, 2010	1/18/2011 2/3/11	Emailed letter from S Tzhone providing comments to the Draft Addendum to the Soil SAP Additional comments from TCEQ on Draft Addendum to the Soil SAP received from S Tzhone by email	Conference calls to discuss comments with agencies on January 25 and February 7
12/22/2010	Submitted the Draft Final Sampling and Analysis Plan Soil Study on December 22, 2010	1/10/2011	Email and letter from S Tzhone approving the Sampling and Analysis Plan Soil Study	Requested final copies be provided to remove "Draft" from "Draft Final"
1/13/2011	Submitted Final Groundwater Study Sampling and Analysis Plan			
1/13/2011	Submitted Final Chemical Fate and Transport Modeling Memorandum			
1/14/2011	Submitted the Final Sampling and Analysis Plan Soil Study			
1/14/2011	Submitted Monthly Progress Report No 14			
1/24/2011	Email from D Keith to S Tzhone regarding schedule for soil sampling activities			
1/27/2011	Letter from IPs counsel submitted to USEPA regarding International Papers efforts to obtain access for the south area investigation			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
1/27/2011	Provided USEPA a compilation of historical aerial photographs of the project area on the project web portal			
2/1/2011	Submitted a DVD containing all draft documents for the SJRWP RI/FS submitted to USEPA via the project portal through January 25, 2011			
2/11/2011	Submitted Draft Contaminants of Potential Concern Memorandum	3/10/2011	Received comments on Draft COPC Technical Memorandum	
2/14/2011	Submitted Draft Revised RI/FS Schedule	2/15/2011	Approval letter from EPA for revised RI/FS schedule	
2/15/2011	Submitted Monthly Progress Report No 15			
2/15/2011	Submitted the Draft Bed Property Study Field Sampling Plan	3/3/2011	Received emailed comments from S Tzhone on Draft Bed Property Study FSP	
2/15/2011	Submitted the Draft Bathymetry Survey Field Sampling Plan	3/3/2011	Received emailed comments from S Tzhone on Draft Bathymetry Survey FSP	
2/22/2011	Submitted Draft Final Sampling and Analysis Play, Soil Study Addendum 1	3/4/2011	Approval letter from USEPA for Draft Final Sampling and Analysis Play, Soil Study Addendum 1	
3/2/2011	Submitted Draft Current Velocity Study Field Sampling Plan			
3/8/2011	Submitted Draft Comment Response Matrices for the Draft Bed Property Study and Draft Bathymetry Survey FSPs	3/9/2011	Phone conversation with Steve Tzhone indicated that responses were approved	
3/9/2011	Submitted Final Sampling and Analysis Plan, Soil Study Addendum 1			
3/11/2011	Phone call from J Sampson (proxy for D Keith) to S Tzhone to report field observations of a petroleum odor and oily sheen on some subsurface soil samples from the south impoundment soil study area	3/11/2011	Received an email from S Tzhone acknowledging the phone report, and with direction to 1) proceed with sampling according to the approved Soil SAP Addendum 1, and 2) to provide a summary report of field observations when the sampling event is complete	
3/15/2011	Submitted Monthly Progress Report No 16			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
3/15/2011	Submitted the Draft Final Bed Property Study and the Draft Final Bathymetric Survey Field Sampling Plans	3/21/2011	Approval letter from USEPA for Draft Final Bed Property Study and the Draft Final Bathymetric Study FSP	
3/16/2011	Submitted the Draft Sedflume Study FSP, the Draft Radioisotope Coring Study FSP, and the Draft Upstream Sediment Load Study FSP	4/8/2011	Received emailed comments from S Tzhone on the Draft Sedflume Study FSP, the Draft Radioisotope Coring Study FSP, and the Draft Upstream Sediment Load Study FSP	Conference call to discuss comments with agencies on April 15, 2011
3/16/2011	Submitted Field Report on south impoundment soil sampling			
3/18/2011	Submitted a letter to USEPA on behalf of International Paper regarding the completion of the south impoundment sampling			
3/25/2011	Submitted the Final Bed Property Study and the Final Bathymetric Survey Field Sampling Plans			
3/28/2011	Submitted the Draft Comment/Response Matrix for the Draft Current Velocity Study Field Sampling Plan	4/6/2011	Received emailed comments from S Tzhone with two additional comments on the Draft Current Velocity Study FSP	
		3/29/2011	Received emailed letter from S Tzhone requesting Respondents participate in Residential Soil Sampling as part of USEPA's Community Engagement Initiative	Respondents provided USEPA their response to this request on April 15, 2011
3/30/2011	Submitted the Draft Comment/Response matrix with responses to USEPA comments on the COPC Technical Memorandum	4/1/2011	Conference call with USEPA to discuss comments	
4/7/2011	Submitted an email request for assistance in obtaining Quality Assurance Project Plan and laboratory validation packages for the TCEQ Total Maximum Load programs These documents are necessary to meet all requirements of USEPA comments on the COPC Technical Memorandum			
4/8/2011	Submitted Revised Comment/Response Matrix for USEPA comments on the COPC Technical Memorandum	5/5/2011	Received approval letter from Carlos Sanchez for Gary Miller on the Draft COPC Technical Memorandum	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
4/8/2011	Submitted the Draft Final Current Velocity Study FSP	5/3/2011	Received approval letter from Carlos Sanchez for Gary Miller on the Draft Final Current Velocity Study Field Sampling Plan	
4/14/2011	Submitted the Draft Comments/Responses matrices for the Draft Sedflume Study, Draft Radioisotope Coring Study, and the Draft Upstream Sediment Load Study Field Sampling Plans	4/15/2011	Conference call with USEPA to discuss comments	
4/15/2011	Submitted Monthly Progress Report No 17			
4/15/2011	Provided USEPA and TCEQ Site groundwater data maps and tables associated with implementation of the north impoundment Groundwater Field Sampling Plan			
		4/19/2011	Received letter from Carlos Sanchez notifying Respondent's that USEPA has changed the designated EPA Project Coordinator under the UAO to M Gary Miller effective April 19, 2011	
4/25/2011	Submitted Draft Final Upstream Sediment Load Field Sampling Plan	5/5/2011	Received phone request from Gary Miller to provide redline/strikeout version of Word document for EPA review	Provided redline strikeout version of document for review by email from Teri Freitas on behalf of David Keith
4/28/2011	Submitted Draft Final Radioisotope Coring Study Field Sampling Plan	5/5/2011	Received approval letter from Carlos Sanchez on behalf of Gary Miller for the Draft Final Radioisotope Coring Study Field Sampling Plan	
		4/29/2011	Received email from Gary Miller with three additional questions on the Draft Sedflume Study Field Sampling Plan	
5/5/2011	Submitted Draft Final Sedflume Field Sampling Plan	5/20/2011	Received approval letter from USEPA on the Draft Final Sedflume Study Field Sampling Plan	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
5/9/2011	Submitted Final Current Velocity Study Field Sampling Plan			
5/9/2011	Submitted Final Radioisotope Coring Study Field Sampling Plan			
5/16/2011	Submitted Monthly Progress Report No 18			
		5/18/2011	Received approval letter from USEPA on the Draft Final Upstream Sediment Load Field Sampling Plan	
		5/23/2011	Received letter from Gary Miller directing Respondents sample residential soils in the area	Respondents provided USEPA their response to this request on May 31, 2011
5/24/2011	Submitted Final Upstream Sediment Load Study Field Sampling Plan			
5/24/2011	Submitted Final Sedflume Field Sampling Plan			
5/25/2011	Submitted email request to USEPA for approval to begin monitoring well decommissioning	6/2/2011	Received email approval from Gary Miller to proceed with this work in accordance with the work plan	
5/27/2011	Submitted all Working Documents from the SJRWP Site Portal on DVD			
6/10/2011	Submitted Draft Soil Sampling and Analysis Plan Addendum 2	7/19/2011	Received draft approval and comments on the Draft Addendum 2 Sampling and Analysis Plan for Residential Soil Sampling	This is the sampling and analysis plan for residential soil sampling The sampling and analysis plan was approved with modifications noted in the letter from USEPA
6/14/2011	Posted an updated Site database to the project web portal			
6/15/2011	Submitted Monthly Progress Report No 19			
7/15/2011	Submitted Monthly Progress Report No 20			
7/20/2011	Correspondence between MIMC counsel and USEPA regarding draft Preliminary Site Characterization Report and south impoundment issue			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
7/20/2011	Correspondence between International Paper counsel and USEPA regarding draft Preliminary Site Characterization Report and south impoundment issue			
7/20/2011	Submitted the Draft Preliminary Site Characterization Report			
7/21/2011	Submitted Field Sampling Report 2010 Sediment Study			
7/21/2011	Submitted Field Sampling Report Tissue Study			
7/21/2011	Submitted Field Sampling Report 2010-2011 Soil Study			
7/21/2011	Submitted Field Sampling Report Groundwater Study			
7/22/2011	Submitted letter to USEPA regarding modeling schedule - due to drought in the Houston area	10/19/2011	Received letter from Gary Miller approving change in submittal date for the Chemical Fate and Transport Modeling Study to February 1, 2012	
7/25/2011	Submitted a Final Addendum 2 to the Soil Sampling and Analysis Plan for Residential Sampling			
7/25/2011	Provided USEPA draft language for an information sheet for residential sampling			
		7/29/2011	Received email from Steve Tzhone regarding potential CenterPoint Energy pipeline planned for construction within the project area	
8/1/2011	Email from Respondents' Project Coordinator to USEPA transmitting draft consent to access for residential sampling			
		8/2/2011	Received copy of email prepared by USEPA counsel regarding comments on draft consent to access for residential sampling	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		8/2/2011	Email from A Foster to Respondents' counsel transmitting draft letters designating Respondents as EPA's representatives for Big Star access	
		8/3/2011	Email from A Foster to Respondents' counsel transmitting copy of letter from EPA to San Jacinto River Fleet regarding its activities at the Site, expressing intent to pursue access from Big Star/San Jacinto River Fleet, and requesting summary of Respondents' problems in obtaining access from Big Star	
		8/3/2011	Email from A Foster to Respondents' counsel regarding fact sheet associated with residential sampling	
8/3/2011	Submitted email to Gary Miller requesting change to approved Addendum 2 to the Soil Sampling and Analysis Plan The requested revision involved a change from archiving deeper samples to including a second potential soil sampling mobilization and collection of deeper samples if required based on the results of the surface sampling The revision was requested on the basis of a meeting between USEPA and Respondents on August 3, 2011 during which it was decided to limit the underground utility locate effort prior to mobilization for sampling so that sampling could occur sooner	8/3/2011	Received email from Gary Miller approving proposed change to residential soil sampling and requesting a revised final soil sampling plan addendum	
8/3/2011	Email between MIMC counsel, on behalf of Respondents, and USEPA regarding revised version of consent to access for residential soil sampling			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
8/3/2011	Email between MIMC counsel, on behalf of Respondents, and USEPA regarding revised version of consent to access for residential soil sampling and providing contact information for lessee of Big Star property and for Big Star counsel			
8/4/2011	Submitted Revised Addendum 2 to the Soil Sampling and Analysis Plan for Residential Sampling			
8/8/2011	Submitted Memorandum to Gary Miller outlining data gap issues identified in the Draft Preliminary Site Characterization Report			A meeting was held with USEPA and other agencies in Austin on August 30, 2011 to discuss these issues A revised memorandum was submitted on September 7, 2011 based on verbal comments received from USEPA following that meeting
		8/9/2011	Email from A Foster to Respondents' counsel regarding revised letter of designation	
		8/10/2011	Email from J Hernandez to Respondents' counsel regarding revised letter of designation	
		8/10/2011	Received a draft letter from USEPA describing additional study in the area of the impoundment south of I-10	
8/15/2011	Submitted Monthly Progress Report No 21			
8/26/2011	Submitted preliminary unvalidated residential soil sampling data to USEPA			Followed electronic data deliverables from the analytical laboratory with an Excel summary spreadsheet on August 29, 2011
9/2/2011	Submitted validated residential soil sampling data to USEPA			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/2/2011	Submitted email to Gary Miller and Valmichael Leos requesting clarification on a potential chemical monitoring program for the TCRA armored cap			In order to start the development of a sampling plan for this program, respondents need to know the following from USEPA (1) Is the use of passive SPME acceptable to USEPA for the cap monitoring (2) Will this program be conducted as part of the TCRA AOC or RI/FS UAO program, and (3) Who will be the lead contact from USEPA for development and approval of the TCRA chemical monitoring program
9/7/2011	Submitted a revised memorandum outlining data gap issues identified in the Draft Preliminary Site Characterization Report to reflect changes requested by USEPA			
9/11/2011	Submitted a Draft Fact Sheet for the Site to USEPA for consideration			This fact sheet was requested by USEPA
9/15/2011	Submitted Monthly Report No 22			
9/19/2011	Submitted Draft Addendum 1 to the Sediment Sampling and Analysis (SAP) for additional sediment sampling	10/3/2011	Received letter from Gary Miller providing conditional approval of the SAP	
9/19/2011	Submitted Draft Addendum 1 to the Tissue Sampling and Analysis Plan (SAP) for additional background catfish and crab sampling	10/3/2011	Received letter from Gary Miller providing conditional approval of the SAP	
9/21/2011	Submitted letter to USEPA regarding ADCP servicing issue and San Jacinto River Fleet Operations	10/19/2011	Received letter from Gary Miller to continue deployment of the acoustic doppler profiler and the re-deployment of the suspended sediment sampler when water is again flowing over the Lake Houston dam	
9/22/2011	Submitted Attachment B2 (Toxicity of Dioxin-Like Compounds to Invertebrates, Fish, Reptiles, Birds and Mammals) in Appendix B of the Final RI/FS Work Plan			
10/4/2011	Submitted Addendum 1 to the Sediment Sampling and Analysis (SAP) for additional sediment sampling			Addressed conditions outlined in conditional approval letter received on 10/3/2011

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
10/5/2011	Submitted Addendum 1 to the Tissue Sampling and Analysis Plan (SAP) for additional background catfish and crab sampling			Addressed conditions outlined in conditional approval letter received on 10/3/2011
10/12/2011	Submitted Draft Dioxin Treatability Study Literature Review			
10/14/2011	Submitted letter to USEPA regarding Field Studies Issues	11/10/2011	Received an email from Gary Miller to David Keith stating that after discussions with partner agencies, the request to remove the ADCP and discontinue data collection for the current velocity and upstream sediment load studies is approved	If a high flow event occurs, or appears likely at any time within the next two months, then the ADCP shall be re-installed and data collection for the current velocity and upstream sediment load studies resumed Based on the timing of any such high flow event during this time, a request for extension of the submittal date for the Fate and Transport Model Study will be considered to allow sufficient time for inclusion and evaluation of any new velocity and sediment load data
10/17/2011	Submitted Monthly Report No 23			
		10/19/2011	Received letter from Gary Miller approving change in submittal date for the Chemical Fate and Transport Modeling Study to February 1, 2012	
10/28/2011	Email from Jennifer Sampson with Integral Consulting to Gary Miller requesting approval to include three additional samples with percent fines of 81 5, 82 3, and 83 2 be added to seven other samples from the Addendum 1 to the Sediment Sampling and Analysis (SAP) for analysis of dioxins and furans and organic carbon	11/1/2011	Email approval from Gary Miller to Jennifer Sampson for the analysis of additional samples as requested	
11/15/2011	Submitted Monthly Report No 24			
11/16/2011	Prepared and submitted a meeting summary for the proposed armored cap monitoring program to USEPA			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		11/16/2011	Received and reviewed draft comments from USEPA on the draft Preliminary Site Characterization Report (PSCR)	
		11/23/2011	Received and reviewed revised draft comments from USEPA on the draft PSCR	
		11/29/2011	Received and reviewed a draft letter from USEPA regarding comments and directives for additional sampling on the southern impoundment area on behalf of IP	
11/29/2011	Email from David Keith to Mr Miller forwarding technical literature on the use of sediment traps			
		12/1/2011	Received and reviewed a fingerprint analysis on the southern impoundment area from Mr Miller on behalf of IP The analysis was prepared by Dr Linda Broach with TCEQ	
12/5/2011	Provided copies of residential soil sampling consent forms to Mr Miller			
12/6/2011	Provided Mr Miller a table pairing residential soil sample identification numbers and physical street addresses			
		12/9/2011	Received a letter from Mr Miller providing conditional approval of the PSCR The letter further instructed the Respondents to provide a comment response matrix to USEPA for approval, followed by submittal of the Final PSCR	
		12/9/2011	Received a letter from Mr Miller providing final comments and directives for additional sampling in the southern impoundment area on behalf of IP	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
12/13/2011	Prepared and submitted a meeting summary for the Fate and Transport Modeling Workshop #2 to USEPA			
12/15/2011	Submitted Monthly Report No 25			
12/29/2011	On behalf of International Paper, submitted Draft Soil SAP Addendum 3, Draft Sediment SAP Addendum 2, and Draft Groundwater SAP Addendum 1			
1/3/2012	Submitted a draft matrix summarizing the Respondents proposed revisions to the PSCR to address USEPA comments received on December 8, 2011	1/5/2012	Received email from Mr Miller approving the proposed revisions to the PSCR	Revisions will be incorporated into the Final PSCR
		1/5/2012	Received approval in a phone call from Mr Miller on the conceptual TCRA chemical monitoring approach and was directed to develop a SAP for that program	
1/10/2012	Provided email notification to Mr Miller that the project database had been updated and posted the project web portal			
1/17/2012	Submitted Monthly Report No 26			
1/19/2012	Submitted the Draft Alternatives Memorandum, Draft Toxicological and Epidemiological Studies Memorandum, and Draft Exposure Assessment Memorandum			
2/1/2012	Submitted Chemical Fate and Transport Modeling Report on February 1, 2012			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		2/9/2012	Email from J Hernandez to Respondents' counsel forwarding draft pre-construction baseline site assessment work plan for San Jacinto River Fleet project ("SJRF Draft SAP")	
2/14/2012	Submitted a letter to USEPA regarding revisions to the RI/FS schedule			
		2/14/2012	Email from J Hernandez to Respondents' counsel forwarding copy of USEPA letter to San Jacinto River Fleet dated 12/1/2012	
		2/15/2012	Email from J Hernandez to Respondents' counsel regarding deadline for comments on the SJRF Draft SAP	
2/15/2012	Submitted Monthly Report No 27			
2/28/2012	Submitted Final Preliminary Site Characterization Report on February 28, 2012			
		3/1/2012	Received comments from Mr Miller on 1) Draft Addendum 1 to the Groundwater Study Sampling and Analysis Plan for Additional Sampling South of Interstate Highway 10	
			2) Draft Addendum 2 to the Sediment Sampling and Analysis Plan for Additional Sampling South of Interstate Highway 10	
			3) Draft Addendum 3 to the Soil Sampling and Analysis Plan for Additional Sampling South of Interstate Highway 10	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
3/8/2012	Submitted a letter to USEPA regarding the Respondents' concerns about the San Jacinto River Fleet operations, and provided comments on the Draft SAP			
3/15/2012	Submitted Draft Baseline Ecological Risk Assessment on March 15, 2012			
3/15/2012	Submitted Monthly Report No 28			
4/2/2012	Submitted Soil SAP Addendum 3, Sediment SAP Addendum 2, and Groundwater SAP Addendum 1 to USEPA	4/11/2012	Received approval on the Soil Sampling and Analysis Plan (SAP) Addendum 3, Sediment SAP Addendum 2, and Groundwater SAP Addendum 1 from USEPA by letter and email from Gary Miller	
4/5/2012	Submitted cover letter and Revised Schedule for RI/FS deliverables to USEPA	4/11/2012	Received approval on the Revised RI/FS Schedule from USEPA by email from Gary Miller	
4/16/2012	Submitted Monthly Report No 29			
4/16/2012	Submitted Draft Sampling and Analysis Plan (SAP) for the TCRA Cap Porewater Assessment	5/9/2012	Received approval with modifications on the Draft SAP Time Critical Removal Action (TCRA) Cap Porewater Assessment on May 9, 2012	
		4/24/2012	Received comments from Gary Miller on the Draft Exposure Assessment Memorandum (EA) and the Draft Toxicological and Epidemiological Studies (TES) Memorandum	Received clarification on comments regarding the EA and TES Memos from USEPA by email to the Respondents' Project Coordinator on May 10, 2012
		5/1/2012	Email from J Hernandez to Respondents' counsel regarding SJRF Draft SAP currently under USEPA review	
		5/8/2012	Received comments from USEPA on the Draft Chemical Fate and Transport Modeling Study	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
5/15/2012	Submitted Monthly Report No 30			
		5/16/2012	Emails from J Hernandez to Respondents' counsel providing comments to the SJRF Draft SAP from NOAA, TCEQ, and the Harris County Pollution Control Services	
5/22/2012	Submitted Sampling and Analysis Plan (SAP) for the TCRA Cap Porewater Assessment			
5/22/2012	Submitted Final Exposure Assessment Memorandum and Final Toxilogical and Epidemiological Studies Memorandum to USEPA			
		6/6/2012	Received additional comments from USEPA on the Draft Chemical Fate and Transport Modeling Study	
		6/12/2012	Received copy of 6/12/2012 correspondence from USEPA to SJRF providing USEPA's comments to the SJRF Draft SAP	
6/13/2012	Provided USEPA a letter regarding the installation of two additional Performance Reference Compound samplers in the TCRA Cap Porewater Assessment implementation to provide an intermediate check on equilibrium conditions between the samplers and cap porewater on June 13, 2012			
6/15/2012	Provided USEPA a letter and updated RI/FS schedule on June 15, 2012			
6/15/2012	Submitted Monthly Report No 31			
		6/22/2012	Received comments from USEPA on the Draft Baseline Ecological Risk Assessment	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
7/10/2012	Provided USEPA a letter outlining a process to resolve comments from USEPA on the draft BERA, and requested the draft final BERA be submitted on August 22, 2012	7/17/2012	Received approval letter from G Miller	
7/16/2012	Submitted Monthly Report No 32			
7/18/2012	Submitted Draft Final Chemical Fate and Transport Modeling Study	9/13/2012	Received approval of the Draft Final Chemical Fate & Transport on September 13, 2012, with requirements to address additional comments for the final report in the approval letter	Received clarification on modifications requested by USEPA on the Draft Final Chemical Fate and Transport Modeling Report by email from Gary Miller on September 25, 2012, conducted additional analyses, and prepared and submitted the final report to USEPA on October 11, 2012 Mr Miller agreed to extending the submittal due date on the Final Fate and Transport Modeling Report to allow time for the Respondents to conduct additional evaluations requested by EPA in the approval letter in a phone call with the Respondents Project Coordinator on October 3, 2012
		8/13/2012	Received comments from USEPA on the Draft Remedial Alternatives Memorandum	
8/15/2012	Provided email notification to Mr Miller that the project database had been updated and posted to the project web portal			
8/15/2012	Submitted Monthly Report No 33			
8/22/2012	Submitted Draft Final Baseline Ecological Risk Assessment	2/26/2013	Received conditional approval of Draft Final Baseline Ecological Risk Assessment	The approval letter provided by USEPA was date stamped February 7, 2013, however it was not transmitted to the Respondents until February 26, 2013 The approval letter included comments and directives from USEPA that require additional revisions be made in the final report

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/11/2012	Submitted Draft Final Remedial Alternative Memorandum	11/14/2012	Received approval of the Draft Final Remedial Alternatives Memorandum on November 14, 2012, with requirements to address additional comments for the report in the approval letter	
9/17/2012	Submitted Monthly Report No 34			
		10/4/2012	Received approval letter from G Miller for TES Memorandum	
		10/4/2012	Received approval letter from G Miller for the EA Memorandum	
10/4/2012	Provided email notification to Mr Miller that the project database had been updated and posted to the project web portal			Included validated Armored Cap Porewater Assessment Data
10/11/2012	Submitted the Final Chemical Fate and Transport Modeling Report to USEPA			
10/15/2012	Submitted Monthly Report No 35			
10/19/2012	On behalf of IP, provided USEPA with boring logs on the three South Impoundment monitoring wells, water table levels, and well construction information			
10/30/2012	Provided USEPA a draft summary presentation of the armored cap porewater monitoring evaluation and results to use in a planned community meeting			
11/14/2012	Provided USEPA a letter confirming that delivery of the draft RI Report and toxi on December 5, 2012 was approved, and providing an updated RI/FS schedule reflecting that change, and other associated changes in the Feasibility Study schedule that were made to maintain the overall project schedule	12/6/2012	Received email approval from Gary Miller that the November 2012 RI/FS schedule was approved as presented	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		11/14/2012	Received approval of the Draft Final Remedial Alternatives Memorandum on November 14, 2012, with requirements to address additional comments for the report in the approval letter	
11/15/2012	Submitted Monthly Report No 36			
12/3/2012	Submitted Final Remedial Alternatives Memorandum to USEPA			
12/5/2012	Submitted Draft Remedial Investigation Report and Draft Baseline Human Health Risk Assessment to USEPA Also submitted five field sampling reports including • Field Sampling Report 2011 – 2012 Sediment Study • Field Sampling Report 2011 Tissue Study • Field Sampling Report 2012 Soil Study • Field Sampling Report TCRA Cap Porewater Assessment • Field Sampling Report Addendum 1 Groundwater Study	3/25/2013	Received conditional approval of the Draft Baseline Human Health Risk Assessment	
12/17/2012	Submitted Monthly Report No 37			
1/2/2013	Respondents submitted their comments on the Revised San Jacinto River Fleet Draft Sampling and Analysis Plan, via email, to USEPA			
1/15/2013	Submitted Monthly Report No 38			
2/15/2013	Submitted Monthly Report No 39			
		2/26/2013	Received conditional approval of the Draft Final Baseline Ecological Risk Assessment	The approval letter provided by USEPA was date stamped February 7, 2013, however it was not transmitted to the Respondents until February 26, 2013 The approval letter included comments and directives from USEPA that require additional revisions be made in the final report
3/15/2013	Submitted Monthly Report No 40			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		3/25/2013	Received conditional approval of the Draft Baseline Human Health Risk Assessment (BHHRA) by email on March 25, 2013, followed by regular mail on March 28, 2013	
3/20/2013	Sent an email to USEPA to obtain clarification on USEPA comments number 4 and 8 on the Draft BERA Additional email correspondence between the Respondents and USEPA related to these comments occurred on April 10, 2013			USEPA is currently considering the Respondents latest findings related to these comments
4/1/2013	Respondents submitted a letter to USEPA explaining the nature of the possible delays regarding the November 2012 RI/FS Schedule			
		4/4/2013	Received conditional approval of the Draft Remedial Investigation (RI) Report by email on April 4, 2013, followed by regular mail on April 8, 2013	
4/4/2013	On behalf of IP, submitted the Draft Groundwater Sampling and Analysis Plan (SAP) Addendum 2 for additional groundwater investigations in the area south of I-10	4/23/2013	Received conditional approval of the Groundwater SAP Addendum 2	
4/8/2013	Respondents provided written notice required under Paragraph 92 with respect to possible delays in the performance of certain actions set forth in the approved November 2012 RI/FS Schedule			
4/10/2013	Sent an email to USEPA to follow up on correspondence related to USEPA comments number 4 and 8 on the Draft BERA			USEPA is currently considering the Respondents latest findings related to these comments
4/10/2013	Sent an email to USEPA to obtain clarification on the USEPA Guidance on the classification of Principal Threat Waste			USEPA is currently considering the Respondents inquiry

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
4/12/2013	Provıded an emaıl to USEPA requestıng a meetıng be conducted on Aprıl 24, 2013 to dıscuss USEPA comment 38 on the Draft RI Report			
4/15/2013	Submıtted Monthly Report No 41			
4/26/2013	Submıtted proposed revısed RI/FS schedule to USEPA	5/14/2013	Receıved emaıl approval of proposed revısed RI/FS Schedule from USEPA	
4/29/2013	Submıtted Fınal Groundwater SAP Addendum 2 to the USEPA			
5/6/2013	Submıtted Fınal Baselıne Ecologıcal Rısk Assessment to USEPA			
5/14/2013	Submıtted letter to USEPA provıdıng an evaluatıon of the potentıal classıficatıon of Prıncıpal Threat Waste at the Sıte			
5/15/2013	Submıtted Monthly Report No 42			
5/21/2013	Submıtted Fınal RI Report to USEPA			
5/22/2013	Submıtted Fınal BHHRA Report to USEPA			
6/6/2013	Submıtted corrected tables for the Fınal RI Report to USEPA			Included replacement pages for Tables 2-1, 6-1, 6-2, and 6-3
6/17/2013	Submıtted Monthly Report No 43			
7/12/2013	Submıtted proposed revısed RI/FS schedule to USEPA	7/30/2013	Receıved approval of the July 2013 RI/FS schedule ın an emaıl from USEPA	
7/15/2013	Provıded emaıl notıficatıon to Mr Mıller that the updated RI/FS database had been updated and posted to the project web portal			
7/15/2013	Submıtted Monthly Report No 44			
8/15/2013	Submıtted Monthly Report No 45			
8/27/2013	On behalf of Internatıonal Paper, provıded emaıl summary to Mr Mıller of valıdated dıoxın and furan data ın from groundwater samples collected south of I-10 ın July 2013			
8/30/2013	Submıtted Draft Feasıbılıty Study Report to USEPA	12/18/2013	Emaıl from A Foster forwardıng comments from TCEQ, Port of Houston, and Harrıs County on the Draft FS	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/16/2013	Provided email notification to Mr Miller that the updated RI/FS database had been updated and posted to the project web portal			
9/16/2013	Submitted Monthly Report No 46			
10/15/2013	Submitted Monthly Report No 47			
11/15/2013	Submitted Monthly Report No 48			
11/21/2013	Submitted Draft Remedial Investigation (RI) Report Addendum November 21, 2013			
12/16/2013	Submitted Monthly Report No 49			
1/14/2014	Submitted Field Sampling Report that summarizes the field work associated with the latest investigations conducted in the area south of I-10			
1/15/2014	Submitted Monthly Report No 50			
		1/16/2014	Respondents' Project Coordinator received comments on the Draft FS from USEPA by email on Thursday, January 16, 2014, and by certified mail on Monday, January 20, 2014	
1/30/2014	Respondents submitted a letter to G Miller requesting revision to Schedule for Submittal of the Final Interim Feasibility Study			
		1/31/2014	Email from G Miller to D Keith (Project Coordinator) responding to Anchor QEA's January 30, 2014 letter and granting extention of time for response to USEPA comments on Draft FS to March 6, 2014	
		2/4/2014	J Sampson of Integral received an email from Philip Turner of USEPA requesting additional information on the relative bioavailability adjustment factor used in the risk assessment for the Site	
		2/10/2014	Respondents' Project Coordinator received amended comments on the Draft FS from USEPA by email, and directing the Respondents to provide the Final Interim FS on or before March 21, 2014	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
2/10/2014	Integral provided a letter to G Miller of USEPA providing detail on the technical foundation for the relative bioavailability adjustment factor on Monday, February 10, 2014			
2/17/2014	Submitted Monthly Report No 51			
3/11/2014	Provided USEPA input on a Draft Fact Sheet for the Site			
3/12/2014	Respondent's requested USEPA consider moving the April 28, 2014 NRRB presentation to the next available NRRB meeting in June 2014			
3/17/2014	Submitted Monthly Report No 52			
3/21/2014	Submitted Draft Final Interim Feasibility Study Report			
3/26/2014	Submitted a White Paper supplement to the Draft Final Interim Feasibility Study Report by email to Gary Miller			Submitted hard copies of White Paper with a transmittal letter on 4/7/2014
		4/1/2014	Received five questions from G Miller by email regarding alternatives in the Draft Final Interim Feasibility Study Report	
4/3/2014	Submitted a comment/response matrix to USEPA summarizing responses to comments on the Draft Feasibility Study Report			
4/15/2014	Submitted Monthly Report No 53			
4/29/2014	Provided an email response to questions received from Gary Miller by email on April 29, 2014, regarding shallow groundwater testing in the area south of Interstate 10			
5/2/2014	Provided an email response to questions received from Gary Miller by email on March 24, 2014, regarding shallow groundwater flow in the area south of Interstate 10			
5/5/2014	Conducted a conference call and WebEx meeting with Gary Miller, USEPA's Remedial Project Manager to review and discuss questions regarding the Draft Final Interim FS contained in an April 2, 2014, email from Mr Miller			
5/15/2014	Submitted Monthly Report No 54			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
6/5/2014	Coordinated with Gary Miller, USEPA's Remedial Project Manager, on questions related to the Draft Final Interim FS in a phone call on June 5, 2014			
6/16/2014	Submitted Monthly Report No 55			
6/20/2014	Submitted National Remedy Review Board (NRRB) materials on behalf of the Respondents			
7/15/2014	Submitted Monthly Report No 56			
		7/30/2014	Email from G Miller to D Keith regarding proposed plan schedule announcement	
8/15/2014	Submitted Monthly Report No 57			
		9/3/2014	Email from G Miller to D Keith seeking clarification on residential soil sampling results	
9/9/2014	Provided email response to G Miller providing clarification on residential soil sampling results	9/9/2014	Email from G Miller confirming that clarification was helpful	
9/15/2014	Submitted Monthly Report No 58			
10/15/2014	Submitted Monthly Report No 59			
10/31/2014	Submitted hydrodynamic, sediment transport, and chemical fate and transport modeling files and documentation to Dr Earl Hayter with the U S Army Corps of Engineers (USACE)			
		11/14/2014	Received an email from Gary Miller suggesting a call to discuss the Site Relative Bioavailability Adjustment (RBA)	Participated in a call with Mr Gary Miller and Dr Phillip Turner to discuss the RBA on November 24, 2014 A call with additional technical staff from USEPA and the Respondents was scheduled for December 16, 2014
11/17/2014	Submitted Monthly Report No 60			
12/15/2014	Submitted Monthly Report No 61			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
12/16/2014	Respondents hosted a meeting with Gary Miller and Phil Turner of USEPA Region 6, and several representatives of USEPA headquarters and their consultants on December 16, 2014 to discuss site-specific considerations relevant to the Relative Bioavailability Adjustment (RBA) factor used in the RI/FS for the site	12/17/2014		Provided USEPA with presentation materials on the Relative Bioavailability Adjustment issue
1/15/2015	Submitted Monthly Report No 62			
1/16/2015	Respondents provided follow up information requested from 12/16/2014 meeting regarding the RBA factor in a letter from D Keith to G Miller			
2/16/2015	Submitted Monthly Report No 63			
3/16/2015	Submitted Monthly Report No 64			
		4/9/2015	Respondents' project coordinator received an email from Gary Miller with request for clarifications for Paul Schroeder at USACE on modeling assumptions in the Draft Final Interim Feasibility Study	
4/15/2015	Submitted Monthly Report No 65			
4/22/2015	Respondents provided USEPA a summary of modeling assumptions for the Draft Final Interim Feasibility Study			
4/22/2015	Respondents provided USEPA analytical laboratory results and concentration data for dioxin and furan congeners from surface water sampling locations in the San Jacinto River	4/15/2015	Respondents' project coordinator received an email from Gary Miller with request for analytical laboratory results and concentration data for dioxin and furan congeners from surface water sampling locations in the San Jacinto River	
5/11/2015	Respondents provided USEPA a summary of laboratories utilized during the performance of the RI/FS	5/8/2015	Respondents' project coordinator received an email from Gary Miller with request for listing of laboratories used during the RI/FS	
5/15/2015	Submitted Monthly Report No 66			
6/15/2015	Submitted Monthly Report No 67			
7/15/2015	Submitted Monthly Report No 68			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		8/6/2015	Received an email from G Miller directing Respondents to revise the Final RI/FS Work Plan dated November 2010 or prepare an addendum and submit to the USEPA within 30 days of receipt of the email	
		8/10/2015	Received the *Evaluation of the San Jacinto Waste Pits Feasibility Study Remediation Alternatives* report prepared by the U S Army Corps of Engineers in an email from Carlos Sanchez	
8/17/2015	Submitted Monthly Report No 69			
9/4/2015	In accordance with Section XXII, Paragraph 92 of the UAO, the Respondents notified USEPA on September 4, 2015, that they will not be able to produce sampling and analysis plans (SAPs) for surface water, porewater, sediment, and groundwater within 30 days as directed in Gary Miller's email dated August 6, 2015			
9/15/2015	Submitted Monthly Report No 70			
9/17/2015	Provided comments on the *Evaluation of the San Jacinto Waste Pits Feasibility Study Remediation Alternatives* report prepared by the U S Army Corps of Engineers			
9/30/2015	Provided USEPA a schedule for completing SAPs for sediment, porewater, groundwater, and surface water	10/8/2015	The USEPA approved the schedule for submittal of draft plans relating to the future sampling at the San Jacinto River Waste Pits Superfund Site The porewater and the sediment sampling plans are due by October 23, 2015, and the ground water and surface water sampling plans are due by November 20, 2015 As directed by USEPA, the remaining schedule for the performance of the work will be considered during completion and approval of the work plans	
10/15/2015	Submitted Monthly Report No 71			

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
10/23/2015	Submitted Draft Addendum 3 to the Sediment Sampling and Analysis Plan	1/29/2016	Received comments from USEPA on Draft Addendum 3 to the Sediment Sampling and Analysis Plan	
10/23/2015	Submitted Draft Addendum 1 to the Sampling and Analysis Plan TCRA Cap Porewater Assessment	1/12/2016	Received comments from USEPA on the Draft Addendum 1 to the Sampling and Analysis Plan (SAP) TCRA Cap Porewater Assessment	
11/16/2015	Submitted Monthly Report No 72			
11/20/2015	Submitted Draft Addendum 3 to the Groundwater Sampling and Analysis Plan	2/26/2016	Received comments from USEPA and Agencies on the Draft Addendum 3 to the Groundwater Sampling and Analysis Plan	
11/20/2015	Submitted the Draft Surface Water Sampling and Analysis Plan	2/16/2016	Received comments from USEPA by regular mail on the Draft Surface Water Sampling and Analysis Plan	
12/1/2015	Submitted a Draft updated Fact Sheet for the Site			
12/15/2015	Submitted Monthly Report No 73			
12/21/2015	Submitted a Draft Work Plan for collecting sediment samples from the surface of the armored cap	12/22/2015	USEPA approved components of the work plan related to sediment sampling	Sampling was conducted on 12/23/15
1/15/2016	Submitted Monthly Report No 74			
2/12/2016	Submitted a revised SAP for porewater that resolves comments received from USEPA on January 12, 2016			
2/12/2016	Submitted a draft report summarizing the results of sediment samples associated with the TCRA armored cap			
2/16/2016	Submitted Monthly Report No 75			
2/16/2016	Submitted Final Sampling and Analysis Plan, Addendum 1 TCRA Cap Porewater Assessment	2/23/2016	Received approval for the Final Sampling and Analysis Plan, Addendum 1 TCRA Cap Porewater Assessment	

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
2/29/2016	Submitted Final Sampling and Analysis Plan, Addendum 3 Sediment Study	3/16/2016	Received approval by email with required modifications for the Final Sampling and Analysis Plan Addendum 3 Sediment Study	
3/4/2016	Participated in a conference call with USEPA to discuss potential fish or shellfish tissue sampling at the Site			
3/15/2016	Submitted Monthly Report No 76			
3/17/2016	Prepared and submitted the Final Sampling and Analysis Plan Surface Water Study to USEPA	3/24/2016	Received approval by email for the Final Sampling and Analysis Plan Surface Water Study	
3/22/2016	Submitted Final Addendum 3 to the Groundwater Study Sampling and Analysis Plan	3/24/2016	Received approval by email for Draft Addendum 3 to the Groundwater Study Sampling and Analysis Plan	
3/23/2016	Submitted Text Replacement Final Sampling and Analysis Plan, Addendum 3 Sediment Study			
3/25/2016	Submitted Draft Addendum 2 to the Tissue Sampling and Analysis Plan for Additional Gulf Killifish Tissue Sampling	4/6/2016	Received approval by email for Draft Addendum 2 to the Tissue Sampling and Analysis Plan for Additional Gulf Killifish Tissue Sampling	
		4/5/2016	The Respondents' Project Coordinator was notified by USEPA's Remedial Project Manager that USEPA would be finalizing the FS for the Site via phone	
4/15/2016	Submitted Monthly Report No 77			
		5/9/2016	Received an email from Gary Miller requesting assistance in locating a table from Appendix E of the Baseline Human Health Risk Assessment (BHHRA)	Responded with the table location in the BHHRA on May 11, 2016
		5/10/2016	Received email from Gary Miller requesting support in preparation of USEPA community meeting scheduled for May 25, 2016	Respondent's Project Coordinator followed up with Mr Miller on May 10, 2016 and the Respondents are working on the requested materials

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		5/11/2016	Received email from Gary Miller notifying the Respondents the National Remedy Review Board (NRRB) meeting for the San Jacinto Site is June 15, 2016 Mr Miller also indicated any white paper submittals for the NRRB consideration should be provided to USEPA by May 20, 2016	
5/12/2016	Provided USEPA an updated draft schedule for sediment, tissue, groundwater, porewater and surface water sampling and analysis plan implementation			
5/12/2016	Submitted a memorandum of Performance Reference Compound analysis procedures for porewater and groundwater sampling and analysis plans for USEPA review and approval	5/13/2016	Received email approval of Performance Reference Compound Procedures from Gary Miller	
5/16/2016	Submitted Monthly Report No 78			
5/23/2016	Submitted Sediment and Tissue Collection Memorandum, dated May 20, 2016	5/24/2016	Received email approval of the modifications to the sediment and tissue sampling locations and procedures as presented in the Sediment and Tissue Sample Collection Memo dated May 20, 2016	
5/27/206	Submitted National Remedy Review Board paper			Prepared and submitted supplemental comments regarding remedial alternatives for the Site to the National Remedy Review Board (NRRB) on May 27, 2016, and a revised submittal on June 1, 2016, based on USEPA's request to limit the number of pages in the submittal
6/6/2016	Submitted proposal for revised schedule for completion of field work for surface water, sediment and tissue sampling	6/6/2016	Received email approval of proposed field schedule from USEPA	
6/15/2016	Submitted Monthly Report No 79			

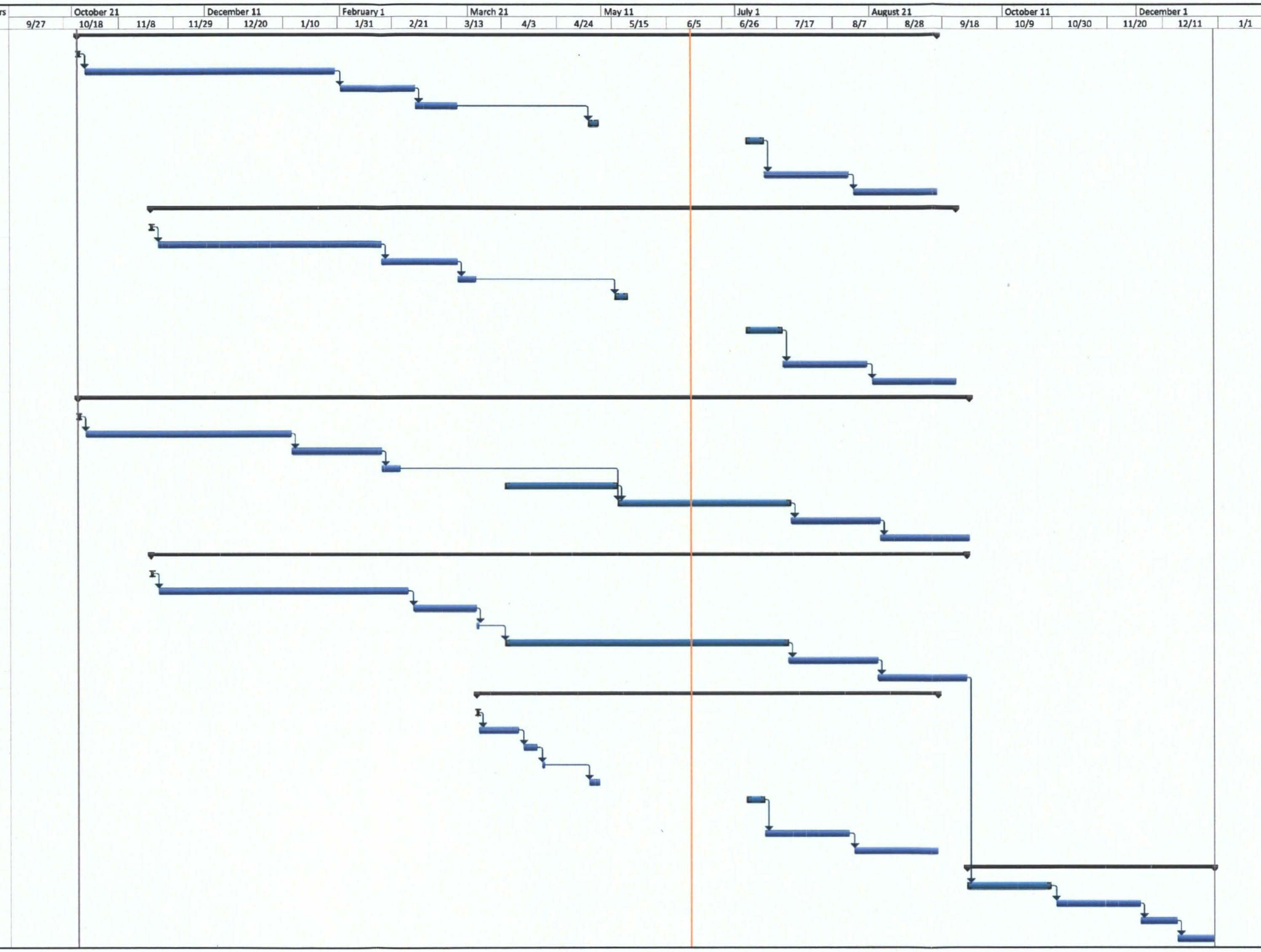
Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
7/1/2016	Provided USEPA a detailed schedule for completing surface water, and remaining tissue and sediment sampling			
7/11/2016	Provided USEPA an updated project database on July 11, 2016			
7/14/2016	Provided USEPA a memorandum regarding final armored cap porewater sampler intervals based on USEPA Dive Team sampler installation			

Table 2. Summary of Data Files Provided

Project	SDG	Lab Data Packages	Lab Electronic Data Deliverables	Comments and/or Other Files
2016 Surface Water	K1605750	K1605750 pdf	K1605750 zip	
2016 Groundwater	E1600326	Final_E1600326amendedak pdf	E1600326 xls	E1600326_PrelimResultsSummary pdf
				Final_E1600326ak pdf
2016 Cap Monitoring	E1600282	Final_E1600282ak pdf	E1600282 xls	E1600282_PrelimResultsSummary pdf

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Sediment SAP**	**235 days**	**Fri 10/23/15**	**Thu 9/15/16**	
2	Draft Sediment SAP Submittal	1 day	Fri 10/23/15	Fri 10/23/15	
3	EPA Review and Comment	70 days	Mon 10/26/15	Fri 1/29/16	2
4	Final Sediment SAP	21 days	Mon 2/1/16	Mon 2/29/16	3
5	EPA Review and Approval	12 days	Tue 3/1/16	Wed 3/16/16	4
6	Initial Sediment SAP Field Implementation	2 days	Fri 5/6/16	Mon 5/9/16	5
7	Sediment SAP Field Implementation Re-deployment	5 days	Tue 7/5/16	Mon 7/11/16	
8	Sediment Laboratory Analysis	24 days	Tue 7/12/16	Fri 8/12/16	7
9	Sediment Data Validation	24 days	Mon 8/15/16	Thu 9/15/16	8
10	**Surface Water SAP**	**220 days**	**Fri 11/20/15**	**Thu 9/22/16**	
11	Draft Surface Water SAP Submittal	1 day	Fri 11/20/15	Fri 11/20/15	
12	EPA Review and Comment	62 days	Mon 11/23/15	Tue 2/16/16	11
13	Final Surface Water SAP	21 days	Wed 2/17/16	Wed 3/16/16	12
14	EPA Review and Approval	5 days	Thu 3/17/16	Wed 3/23/16	13
15	Initial Surface Water SAP Field Implementation	5 days	Mon 5/16/16	Fri 5/20/16	14
16	Surface Water SAP Field Implementation Re-deployment	10 days	Tue 7/5/16	Mon 7/18/16	
17	Surface Water Laboratory Analysis	24 days	Tue 7/19/16	Fri 8/19/16	16
18	Surface Water Data Validation	24 days	Mon 8/22/16	Thu 9/22/16	17
19	**Porewater SAP**	**243 days**	**Fri 10/23/15**	**Tue 9/27/16**	
20	Draft Porewater SAP Submittal	1 day	Fri 10/23/15	Fri 10/23/15	
21	EPA Review and Comment	57 days	Mon 10/26/15	Tue 1/12/16	20
22	Final Porewater SAP	25 days	Wed 1/13/16	Tue 2/16/16	21
23	EPA Approval	5 days	Wed 2/17/16	Tue 2/23/16	22
24	EPA Dive Team Inspection	31 days	Mon 4/4/16	Mon 5/16/16	
25	Porewater SAP Field Implementation	48 days	Tue 5/17/16	Thu 7/21/16	23,24
26	Porewater Laboratory Analysis	24 days	Fri 7/22/16	Wed 8/24/16	25
27	Porewater Data Validation	24 days	Thu 8/25/16	Tue 9/27/16	26
28	**Groundwater SAP**	**222 days**	**Fri 11/20/15**	**Mon 9/26/16**	
29	Draft Groundwater SAP Submittal	1 day	Fri 11/20/15	Fri 11/20/15	
30	EPA Review and Comment	70 days	Mon 11/23/15	Fri 2/26/16	29
31	Final Groundwater SAP	18 days	Mon 2/29/16	Wed 3/23/16	30
32	EPA Approval	1 day	Thu 3/24/16	Thu 3/24/16	31
33	Groundwater SAP Field Implementation	78 days	Mon 4/4/16	Wed 7/20/16	32
34	Groundwater Laboratory Analysis	24 days	Thu 7/21/16	Tue 8/23/16	33
35	Groundwater Data Validation	24 days	Wed 8/24/16	Mon 9/26/16	34
36	**Tissue SAP**	**126 days**	**Thu 3/24/16**	**Thu 9/15/16**	
37	Draft Tissue SAP Submittal	1 day	Thu 3/24/16	Thu 3/24/16	
38	EPA Review and Comment	11 days	Fri 3/25/16	Fri 4/8/16	37
39	Final Tissue SAP	5 days	Mon 4/11/16	Fri 4/15/16	38
40	EPA Approval	1 day	Mon 4/18/16	Mon 4/18/16	39
41	Initial Tissue SAP Field Implementation	2 days	Fri 5/6/16	Mon 5/9/16	40
42	Tissue SAP Field Implementation Re-deployment	5 days	Tue 7/5/16	Mon 7/11/16	
43	Tissue Laboratory Analysis	24 days	Tue 7/12/16	Fri 8/12/16	42
44	Tissue Data Validation	24 days	Mon 8/15/16	Thu 9/15/16	43
45	**RI Addendum 2 Report**	**68 days**	**Tue 9/27/16**	**Thu 12/29/16**	
46	Draft RI Addendum 2 Report	24 days	Tue 9/27/16	Fri 10/28/16	35
47	EPA Review and Comment	24 days	Mon 10/31/16	Thu 12/1/16	46
48	Final RI Addendum 2 Report	10 days	Fri 12/2/16	Thu 12/15/16	47
49	EPA Approval	10 days	Fri 12/16/16	Thu 12/29/16	48



Notes:

14 Surface Water SAP Field Implementation: May 13. Call Gary Miller to evaluate expected flow conditions in the subsequent three weeks to discuss whether surface water sampling should commence the following Monday. If not, do this each Friday until conditions seem favorable, with deployment to take place as soon as possible.

22 EPA Dive Team Inspection: Final dive team inspection on northwestern area to be conducted by probing from boat at previously identified areas following porewater sampler installation the week of 5/16.

23 Porewater SAP Field Implementation: Field schedule driven by storm events and EPA dive team.

31 Groundwater SAP Field Implementation: Original well installation and sampler deployment occurred from April 03 - April 12, 2016. Final Well on Southeastern Berm of Northern Impoundment to be installed week of 5/9/16 after building access into the well location across right-of-way ditch. Added additional time for well samplers to stay deployed to account for final well installation date and equilibration following storm events.

C:\Users\shubbard\Documents\DRAFT San Jac Spring_Summer 2016REV 6_13_16.docx

July 07, 2016

Service Request No:E1600282

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: San Jacinto

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory April 08, 2016
For your reference, these analyses have been assigned our service request number **E1600282.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

Client:	Integral Consulting, Incorporated	**Service Request No.:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Received:**	4/8/16
Sample Matrix:	SPME Fibers (Non-aqueous liquid)		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six SPME Fibers were received for analysis at ALS Environmental – Houston HRMS on 4/8/16. Samples E1600282-001-005 were placed on hold 4/22/16 and eventually cancelled on 5/26/16.

The samples were received at 17.6°C in good condition and are consistent with the accompanying chain of custody form. The client was contacted and allowed the continuation of analysis. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Custody seals were not present on the cooler upon arrival at the laboratory.

Extraction

The samples in batch EQ1600219 were spiked with the 1613B full list labeled standard and shaken for 2 minutes with 60 ml of hexane. The solvent was decanted to a new jar and rinsed. Samples were then spiked with M23 Alternate standard which only has 1,2,3,7,8,9 HxCDF.

Data Validation Notes and Discussion

Precision and Accuracy

EQ1600219: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Client: Integral Consulting, Incorporated **Service Request:** E1600282
Project: San Jacinto/150557-01.01

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1600282-001	04052016SJPW1	4/5/2016	1600
E1600282-002	04052016SJPW2	4/5/2016	1600
E1600282-003	04052016SJPW3	4/5/2016	1600
E1600282-004	04052016SJPW4	4/5/2016	1600
E1600282-005	04052016SJPW5	4/5/2016	1600
E1600282-006	04052016SJPW10	4/5/2016	1700

Service Request Summary

Folder #:	**E1600282**	Project Chemist:	Arthi Kodur
Client Name:	Integral Consulting, Incorporated	Originating Lab:	HOUSTON
Project Name:	San Jacinto	Logged By:	ALOPEZ
Project Number:	150557-01.01	Date Received:	04/08/16
		Internal Due Date:	4/29/2016
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA	QAP:	LAB QAP
		Qualifier Set:	HRMS Qualifier Set
		Formset:	Lab Standard
		Merged?:	N
Phone Number:	360-705-3534	Report to MDL?:	Y
Cell Number:		P.O. Number:	
Fax Number:		EDD:	No EDD Specified
E-mail:	chutchings@integral-corp.com		

6 -N/A N/A

Location: EHRMS-WIC 3B, E-Disposed

Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON Dioxins Furans/1613B
E1600282-001	04052016SJPW1	NonAq Liquid	04/05/16 1600	**IV**
E1600282-002	04052016SJPW2	NonAq Liquid	04/05/16 1600	**IV**
E1600282-003	04052016SJPW3	NonAq Liquid	04/05/16 1600	**IV**
E1600282-004	04052016SJPW4	NonAq Liquid	04/05/16 1600	**IV**
E1600282-005	04052016SJPW5	NonAq Liquid	04/05/16 1600	**IV**
E1600282-006	04052016SJPW10	NonAq Liquid	04/05/16 1700	**IV**

Folder Comments:

Samples E1600282-001-005 on hold till further notice (ak 4/22/16)

Service Request Summary

Folder #:	**E1600282**	Project Chemist:	Arthi Kodur	6 -N/A N/A	
Client Name:	Integral Consulting, Incorporated	Originating Lab:	HOUSTON	**Location:**	EHRMS-WIC 3B, E-Disposed
Project Name:	San Jacinto	Logged By:	ALOPEZ	**Pressure Gas:**	
Project Number:	150557-01.01	Date Received:	04/08/16		
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA	Internal Due Date:	4/29/2016		
		QAP:	LAB QAP		
		Qualifier Set:	HRMS Qualifier Set		
		Formset:	Lab Standard		
		Merged?:	N		
Phone Number:	360-705-3534	Report to MDL?:	Y		
Cell Number:		P.O. Number:			
Fax Number:		EDD:	No EDD Specified		
E-mail:	chutchings@integral-corp.com				

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	1	native TCDD/TCDF/23478 PeCDF (ak 4/20/16) do not extract till curve is ready-talk to Arthi before doing anyhting (ak 5/2/16)
Semivoa GCMS	Dioxins Furans/1613B	5	E1600282-001 through 005= labeled TCDD/TCDF/23478 PeCDF

Superset Summary

Service Request: E1600282 **SuperSet Reference:** 16-0000383418 rev 00

Analytical Method: **1613B**

Calibrations: 06/25/16

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P603994	P603991	P603993	E1600282-006
P603993	P603991	P603993	EQ1600219-01
P604002	P603991	P603993	EQ1600219-02
P604003	P603991	P603993	EQ1600219-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	10/6/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
Minnesota Department of Health	840911	12/31/2016
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Tennessee Department of Environment and Concervation	04016	6/30/2017
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2016
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	8/31/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1600282 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date	Analyst:	Samples:
07/01/16	JC	006

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/05/16	LKL	006

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number:

Date: 4/7/2016
Project Name: San Jacinto
Project Number: 150557-01.01
Project Manager: David Keith
Phone Number: 503-972-5001 (Masa Kanematsu)
Shipment Method: Anchor QEA

ANCHOR QEA

1/2

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	13C-2378 TCDD	13C-2378 TCDF	13C-23478 PeCDF	2378 TCDD	2378 TCDF	23478 PeCDF	Comments/Preservation
1	04052016 SJPW 1	4/5/2016 16:00	SPME	1	↓	↓	↓	↓	↓	↓	PDMS fiber (50.96mm)
2	04052016 SJPW 2	4/5/2016 16:00	SPME	1	↓	↓	↓	↓	↓	↓	PDMS fiber (51.48mm)
3	04052016 SJPW 3	4/5/2016 16:00	SPME	1	↓	↓	↓	↓	↓	↓	PDMS fiber (49.40mm)
4	04052016 SJPW 4	4/5/2016 16:00	SPME	1	↓	↓	↓	↓	↓	↓	PDMS fiber (47.25mm)
5	04052016 SJPW 5	4/5/2016 16:00	SPME	1	↓	↓	↓	↓	↓	↓	PDMS fiber (51.11mm)
6											
7	04052016 SJPW 10	4/5/2016 17:00	SPME	1				✓	✓	✓	PDMS fiber (50.96mm)
8											
9											
10											
11											
12											
13											
14											
15											

Notes: 04052016 SJPW1 ~ 5 : PRC spiked fiber to determine initial PRC concentrations (Porewater Study)
04052016 SJPW 10 : SPME blank (Porewater study)

Relinquished By: Company: Anchor QEA, LLC
Masa Kanematsu 4/7/2016
Signature/Printed Name Date/Time

Received By: Company:
Signature/Printed Name Date/Time

Relinquished By: Company:
Signature/Printed Name Date/Time

Received By: Company: ALS HRMS
4/8/16 9:00
Signature/Printed Name Date/Time

E1600282 5
Integral Consulting, Inc.
San Jacinto

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

E1600282

ALS Environmental

Cooler Receipt Form

Project Chemist AK

Client/Project Anchor QEA

Thermometer ID SM04

Date/Time Received: 4/8/16 9:00 Initials: AL Date/Time Logged in: 4/8/16 Initials AL

1. Method of delivery: ◯ US Mail ✓ Fed Ex ◯ UPS ◯ DHL ◯ Courier ◯ Client

2. Samples received in: ✓ Cooler ◯ Box ◯ Envelope ◯ Other

3. Were custody seals on coolers? ◯ Yes ✓ No

   Were they intact? ◯ Yes ◯ No ✓ N/A

   Were they signed and dated? ◯ Yes ◯ No ✓ N/A

   If yes, how many and where? No Seals

4. Packing Material: ◯ Inserts ✓ Baggies ✓ Bubble Wrap ✓ Gel Packs ◯ Wet Ice ◯ Sleeves ◯ Other

5. Foreign or Regulated Soil? ◯ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7760 6344 3470		4/8/16	9:15	AL	15.6/17.6	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ◯ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ◯ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ◯ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ◯ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ◯ No

Notes, Discrepancies, & Resolutions:

Samples received out of temp AL 4/8/16

Service request Label:

E1600282 5
Anchor QEA, LLC
Estuary Water by Method 1613B

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Preparation Information Benchsheet

Prep Run#: 262304
Team: Semivoa GCMS/ALOPEZ

Prep WorkFlow: OrgExtDiox(365)
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/26/16 12:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600282-006	04052016SJPW10	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
2	E1600326-001	03162016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
3	E1600326-002	04072016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
4	E1600326-003	04072016SJGW2	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
5	EQ1600219-01	MB		1613B/Dioxins Furans			NonAq Liquid	2.210g	
6	EQ1600219-02	LCS		1613B/Dioxins Furans			NonAq Liquid	2.086g	
7	EQ1600219-03	DLCS		1613B/Dioxins Furans			NonAq Liquid	2.032g	

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution — Inventory ID 86467 — Logbook Ref: 86467 12/8/2015 CID 100ng/ml — Expires On: 06/05/2016

E1600282-006 20.00µL E1600326-001 20.00µL E1600326-002 20.00µL E1600326-003 20.00µL EQ1600219-01 20.00µL EQ1600219-02 20.00µL
EQ1600219-03 20.00µL

Name: 1613B Matrix Working Standard — Inventory ID 172305 — Logbook Ref: JP 172305 5/10/16 2-20 ng/mL — Expires On: 11/06/2016

E1600282-006 100.00µL E1600326-001 100.00µL E1600326-002 100.00µL E1600326-003 100.00µL EQ1600219-01 100.00µL EQ1600219-02 100.00µL
EQ1600219-03 100.00µL

Name: 1613B Labeled Working Standard — Inventory ID 172717 — Logbook Ref: 172717 AL 05/25/16 2-4ng/mL — Expires On: 11/16/2016

E1600282-006 1,000.00µL E1600326-001 1,000.00µL E1600326-002 1,000.00µL E1600326-003 1,000.00µL EQ1600219-01 1,000.00µL EQ1600219-02 1,000.00µL
EQ1600219-03 1,000.00µL

Preparation Materials

Carbon, High Purity	CID 05/23/2016 (172622)	Ethyl Acetate 99.9% Minimum EtOAc	CID 02/25/2016 (88324)	Glass Wool	CID 04/01/201 (171329)
Hexanes 95%	CID 05/16/2016 (172432)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)	Sodium Hydroxide Reagent Grade NaOH	05/12/2016 CID (172369)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 04/25/16 (171913)	Asian Taste Pure Canola Oil	TW 04/29/16 (172043)	Silica Gel	CID 05/13/2016 (172433)
sulfuric acid	AL 03/25/16 (89012)				

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/26/16 12:00	Started:	6/1/16 14:00	Started:	6/3/16 08:00	Started:	6/3/16 12:00
Finished:	5/26/16 14:00	Finished:	6/1/16 15:00	Finished:	6/3/16 09:30	Finished:	6/3/16 12:30
By:	ALOPEZ	By:	ALOPEZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 262304 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/26/16 12:00 PM

Comments: ______________________________

Reviewed By: ____________________ Date: ____________

Chain of Custody

Relinquished By:		Date:		Extracts Examined	
Received By:		Date:		Yes	No

Analytical Results

ALS Environmental - Houston HRMS
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/05/16 17:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04052016SJPW10	**Units:**	ng/Kg
Lab Code:	E1600282-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 20:37
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603994	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	1.83	5.00			1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	2.60	5.00			1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	0.820	25.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/05/16 17:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04052016SJPW10	**Units:**	ng/Kg
Lab Code:	E1600282-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 20:37
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603994	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	1.83	5.00			1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	2.60	5.00			1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	0.825	25.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/05/16 17:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04052016SJPW10	**Units:**	
Lab Code:	E1600282-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 20:37
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603994	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	561.939	28		25-164	0.77	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	504.406	25		24-169	0.81	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	688.402	34		24-185	1.60	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	701.545	35		21-178	1.61	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1596.084	40		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.548			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	0.599	2.26			1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	0.795	2.26			1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	1.00**JK**		0.388	11.3	1.22	1.001	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	0.599	2.26			1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	0.795	2.26			1
Pentachlorodibenzofurans (PeCDF), Total	1.44**J**		0.378	11.3	1.40		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	880.428	44		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	825.710	41		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	826.023	41		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	787.091	39		21-178	1.59	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1489.602	37		29-147	0.51	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.000			35-197	NA	1.022

Accuracy & Precision

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Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Analyzed:**	06/26/16
Sample Matrix:	NonAq Liquid	**Date Extracted:**	05/26/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	504016

	Lab Control Sample EQ1600219-02			Duplicate Lab Control Sample EQ1600219-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484	479	101	478	492	97	68-160	1	50
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1	95.9	90	94.1	98.4	96	75-158	9	50
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2	95.9	86	83.1	98.4	84	67-158	1	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2		0.446	2.40	0.77	1.001	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1		0.574	2.40	0.77	1.001	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484		0.862	12.0	1.55	1.001	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	82.2		0.446	2.40	0.77		1
Tetrachlorodibenzofurans (TCDF), Total	86.1		0.574	2.40	0.77		1
Pentachlorodibenzofurans (PeCDF), Total	931		0.831	12.0	1.72		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	939.378	47		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	896.386	45		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	905.972	45		24-185	1.60	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	856.361	43		21-178	1.57	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1759.063	44		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.286			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	83.1		6.46	6.46	0.73	1.001	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	94.1		6.40	6.40	0.75	1.001	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	478		4.39	12.3	1.62	1.001	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	83.1		6.46	6.46	0.73		1
Tetrachlorodibenzofurans (TCDF), Total	94.1		6.40	6.40	0.75		1
Pentachlorodibenzofurans (PeCDF), Total	919		4.33	12.3	1.53		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600282
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	761.306	38		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	729.732	36		24-169	0.83	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	847.157	42		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	815.813	41		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1517.396	38		29-147	0.51	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0			35-197	NA	

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04052016SJPW10

Run #9 Filename P603994 Samp: 1 Inj: 1 Acquired: 25-JUN-16 20:37:12
Processed: 1-JUL-16 12:18:18 Sample ID: E1600282-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	2.041e+04	2.518e+04	0.81	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	4.121e+04	2.575e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.179e+04	2.599e+04	1.61	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.218e+04	6.195e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	1.600e+04	2.075e+04	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.131e+04	3.913e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.747e+04	2.993e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	3.645e+01				no	0.945

EPL

TCDD = (1.520e+03 + 1.20e+03) x 2000 pg 1 x 2.5 / [(~~1.600e+04~~ + ~~2.075e+04~~) (3.10e+06 + 3.99e+06) x 1.0 g x 100/ x 1.048] = 1.83 ng/kg

um 07/05/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04052016SJPW10

Run #9 Filename P603994 Samp: 1 Inj: 1 Acquired: 25-JUN-16 20:37:12
Processed: 1-JUL-16 12:18:18 LAB. ID: E1600282-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.56e+02	*	*	3.30e+03	*
3	2,3,4,7,8-PeCDF	*	7.88e+02	*	*	1.21e+03	*
11	2,3,7,8-TCDD	*	1.52e+03	*	*	1.20e+03	*
18	13C-2,3,7,8-TCDF	3.72e+06	4.70e+03	7.9e+02	4.60e+06	3.76e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	7.39e+06	5.98e+03	1.2e+03	4.68e+06	3.79e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	7.99e+06	5.98e+03	1.3e+03	5.03e+06	3.79e+03	1.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.44e+06	1.13e+03	5.7e+03	1.24e+07	1.37e+03	9.1e+03
26	13C-1,2,3,4-TCDF	*	4.70e+03	*	*	3.76e+03	*
27	13C-2,3,7,8-TCDD	3.10e+06	6.44e+03	4.8e+02	3.99e+06	3.93e+03	1.0e+03
33	13C-1,2,3,4-TCDD	5.84e+06	6.44e+03	9.1e+02	7.38e+06	3.93e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.58e+06	2.30e+03	3.3e+03	6.05e+06	1.58e+03	3.8e+03
35	37Cl-2,3,7,8-TCDD	9.17e+03	1.81e+03	5.1e+00			

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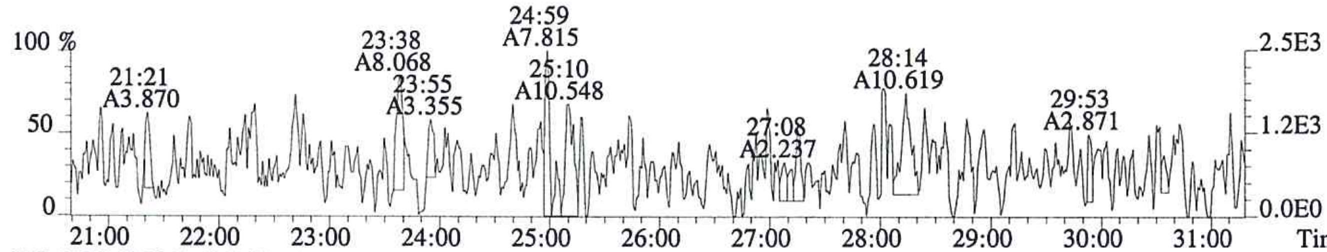
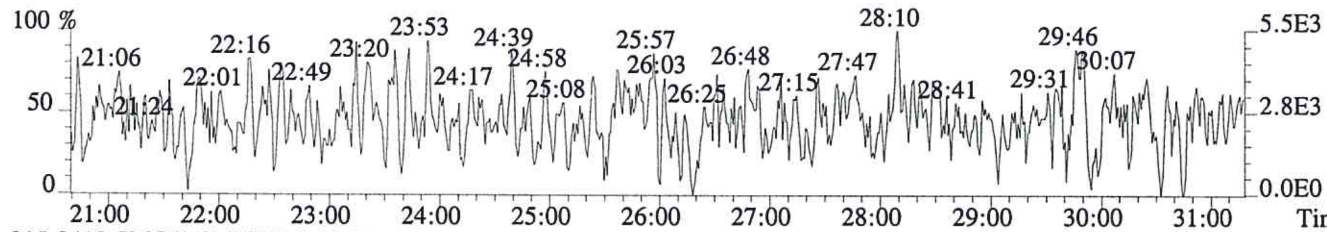
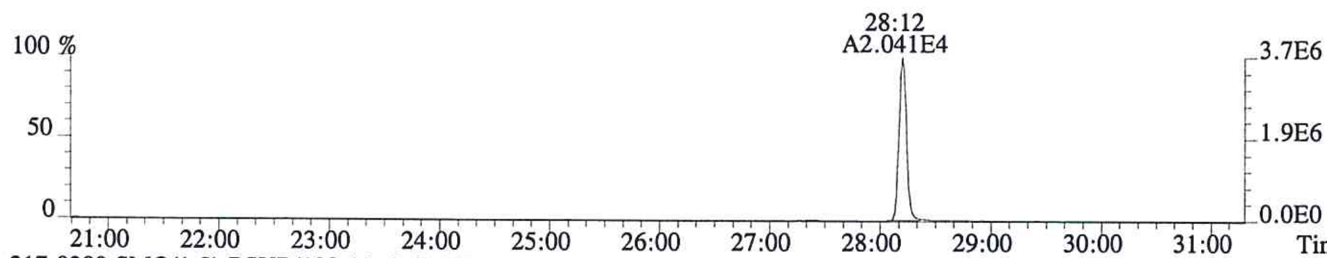
File:P603994 #1-756 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



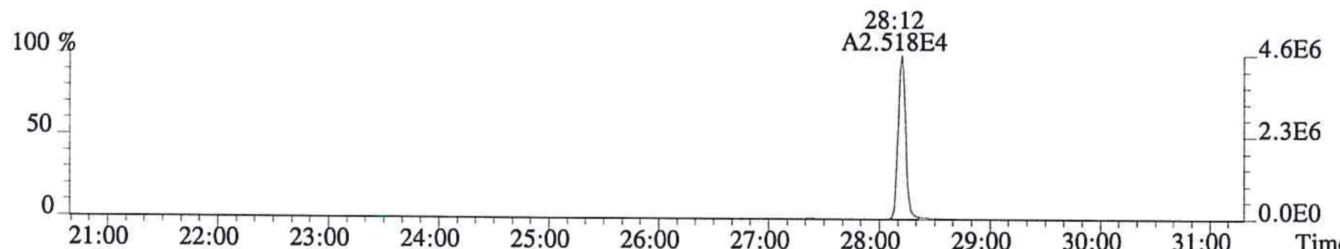
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3296.0,1.00%,F,T)



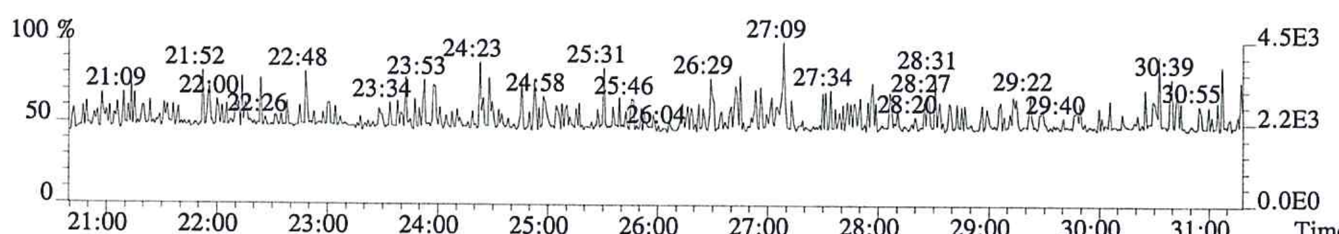
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4704.0,1.00%,F,T)



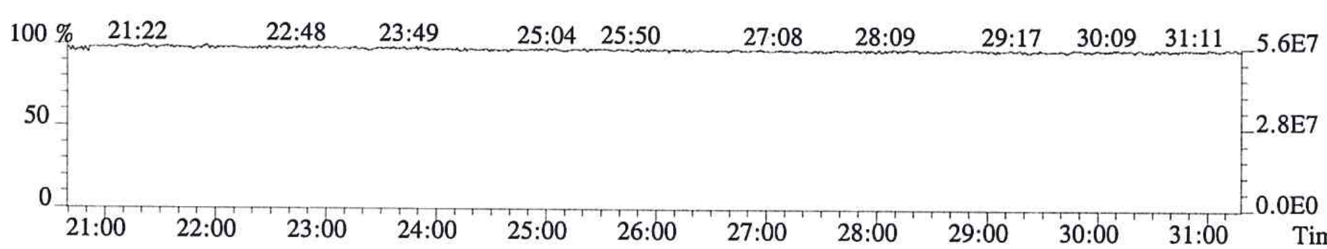
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3764.0,1.00%,F,T)



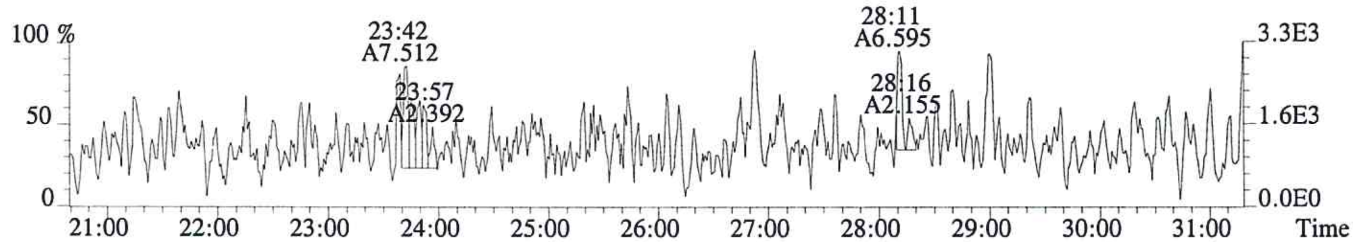
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



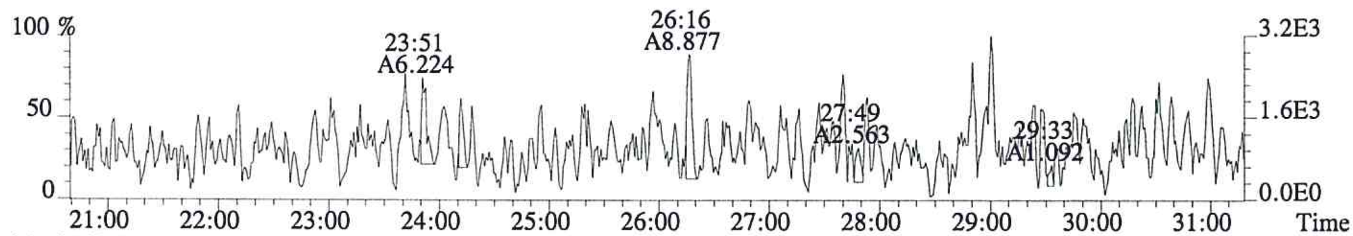
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



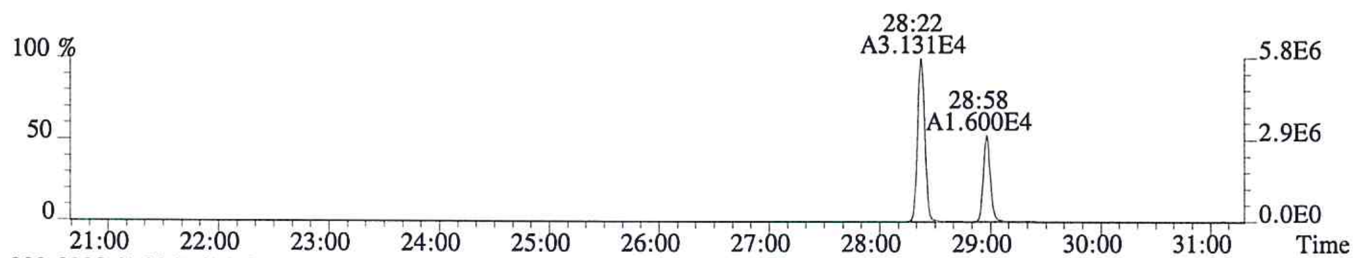
File:P603994 #1-756 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



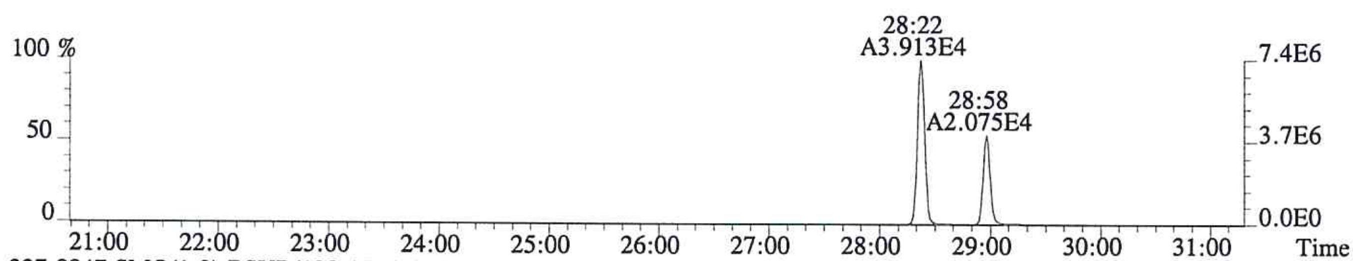
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



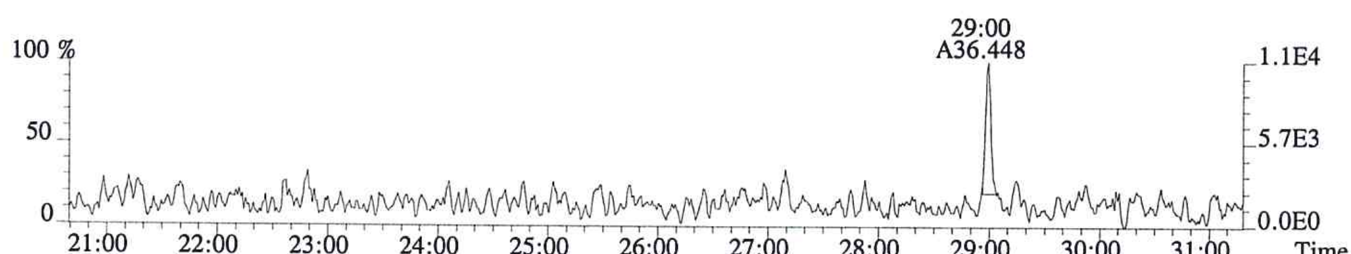
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6440.0,1.00%,F,T)



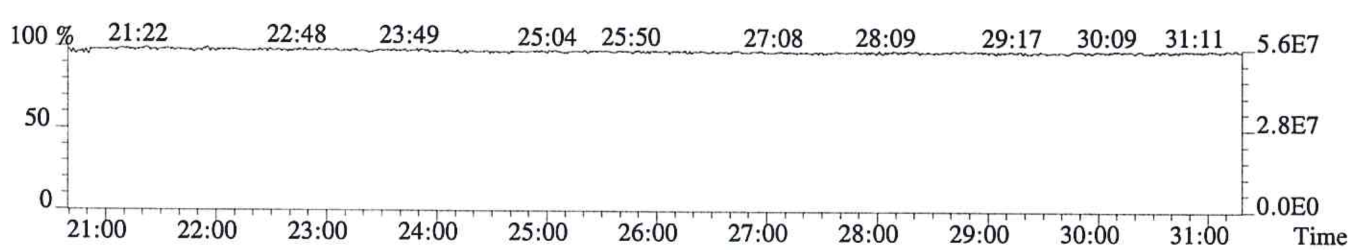
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3928.0,1.00%,F,T)



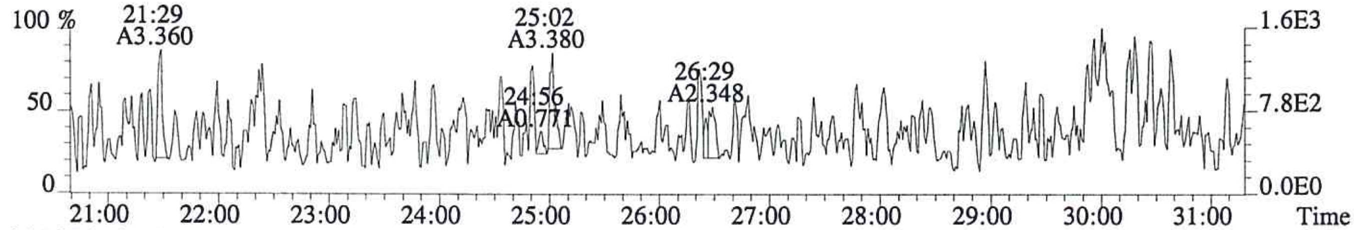
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



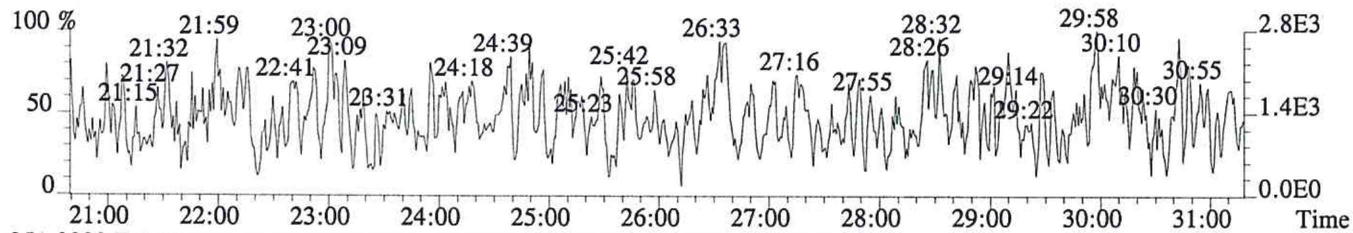
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



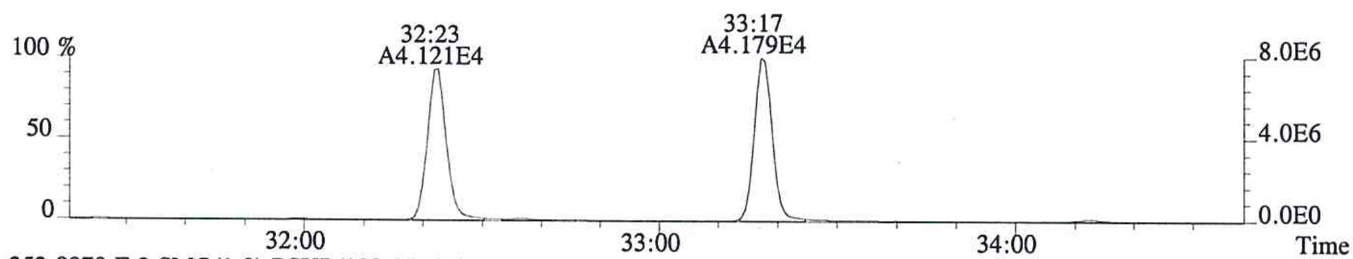
File:P603994 #1-756 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



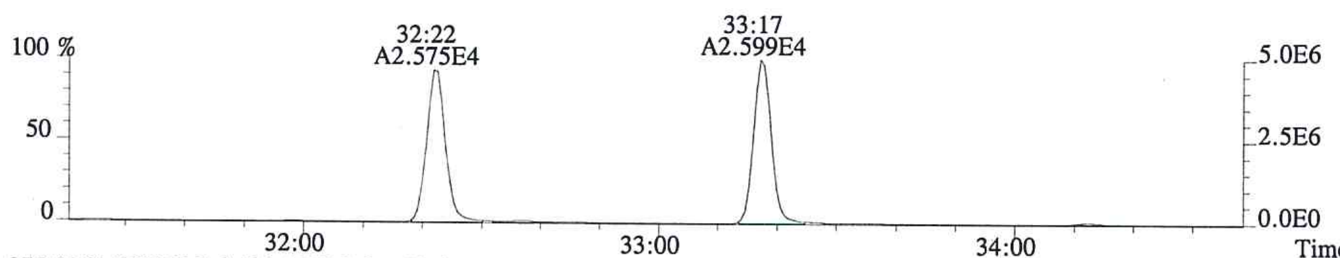
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



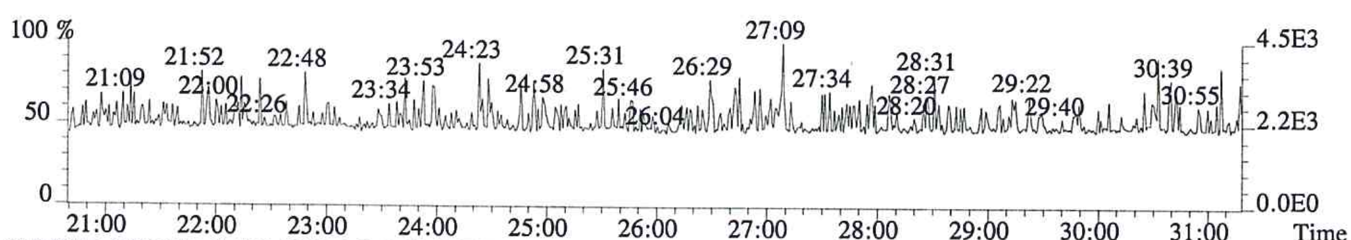
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



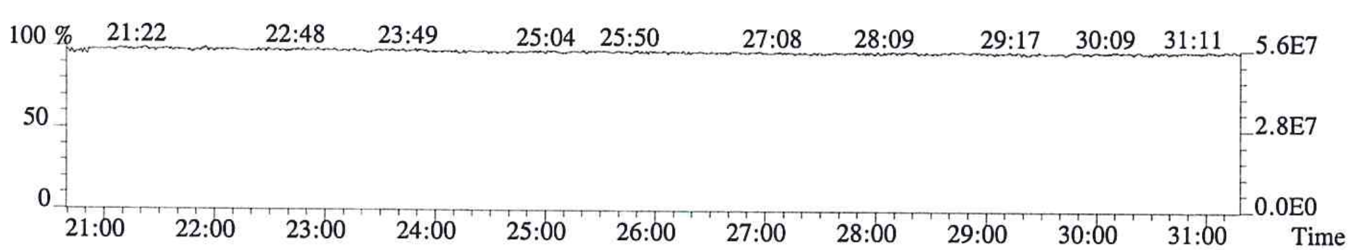
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

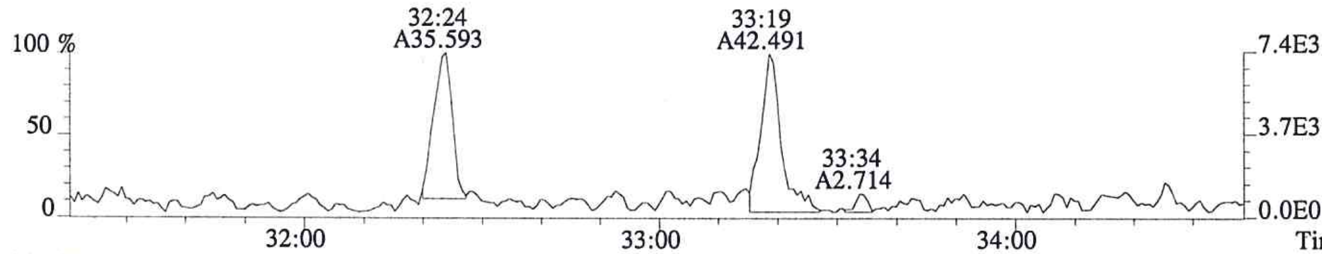


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

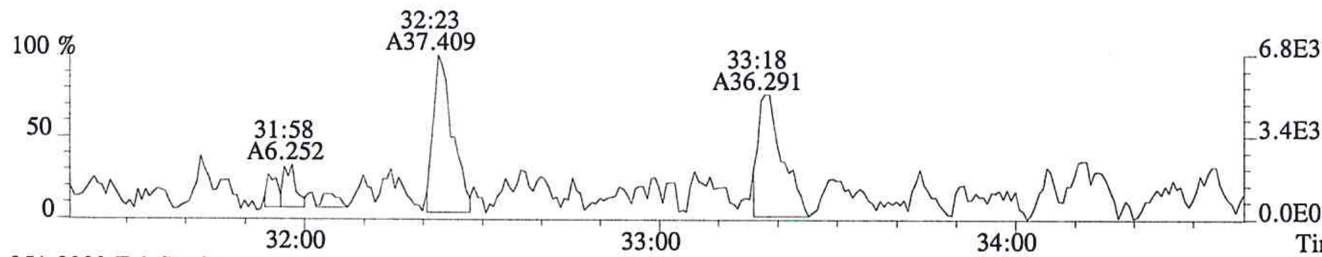


File:P603994 #1-298 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006

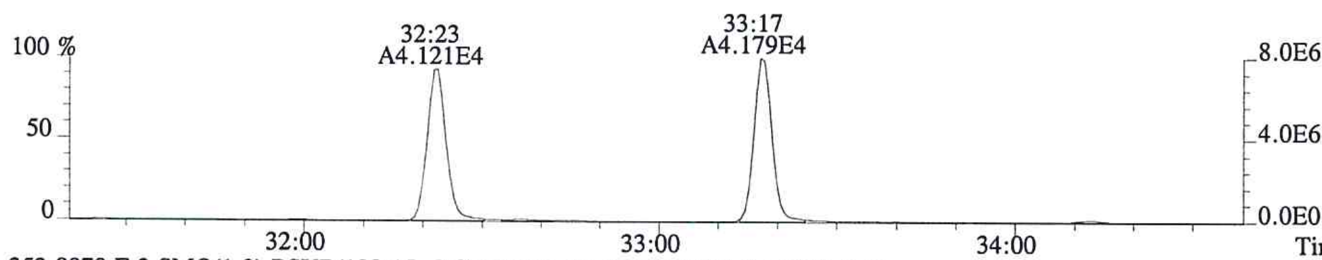
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



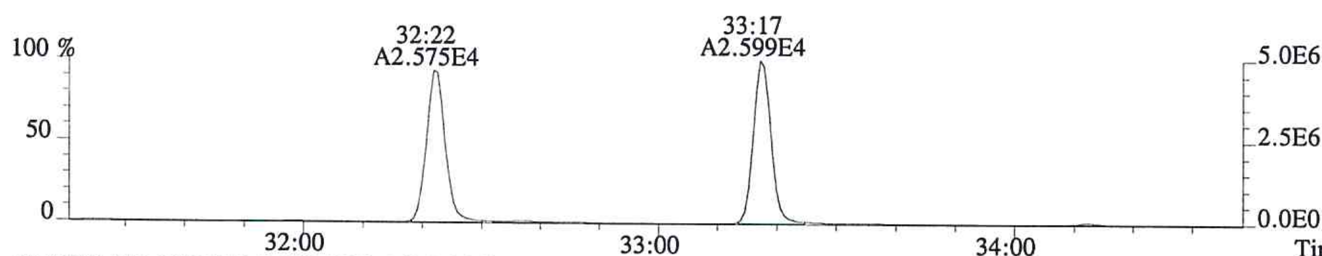
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



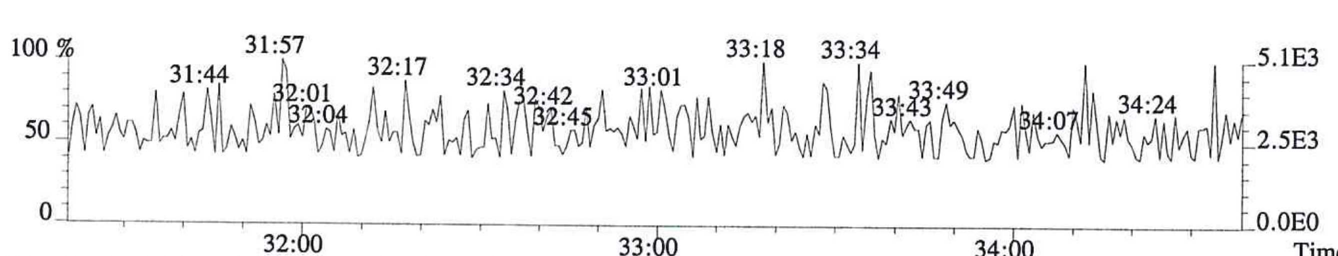
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



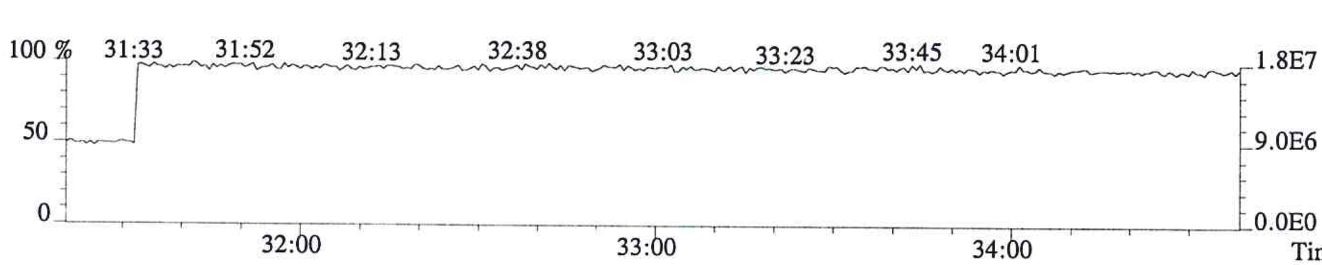
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



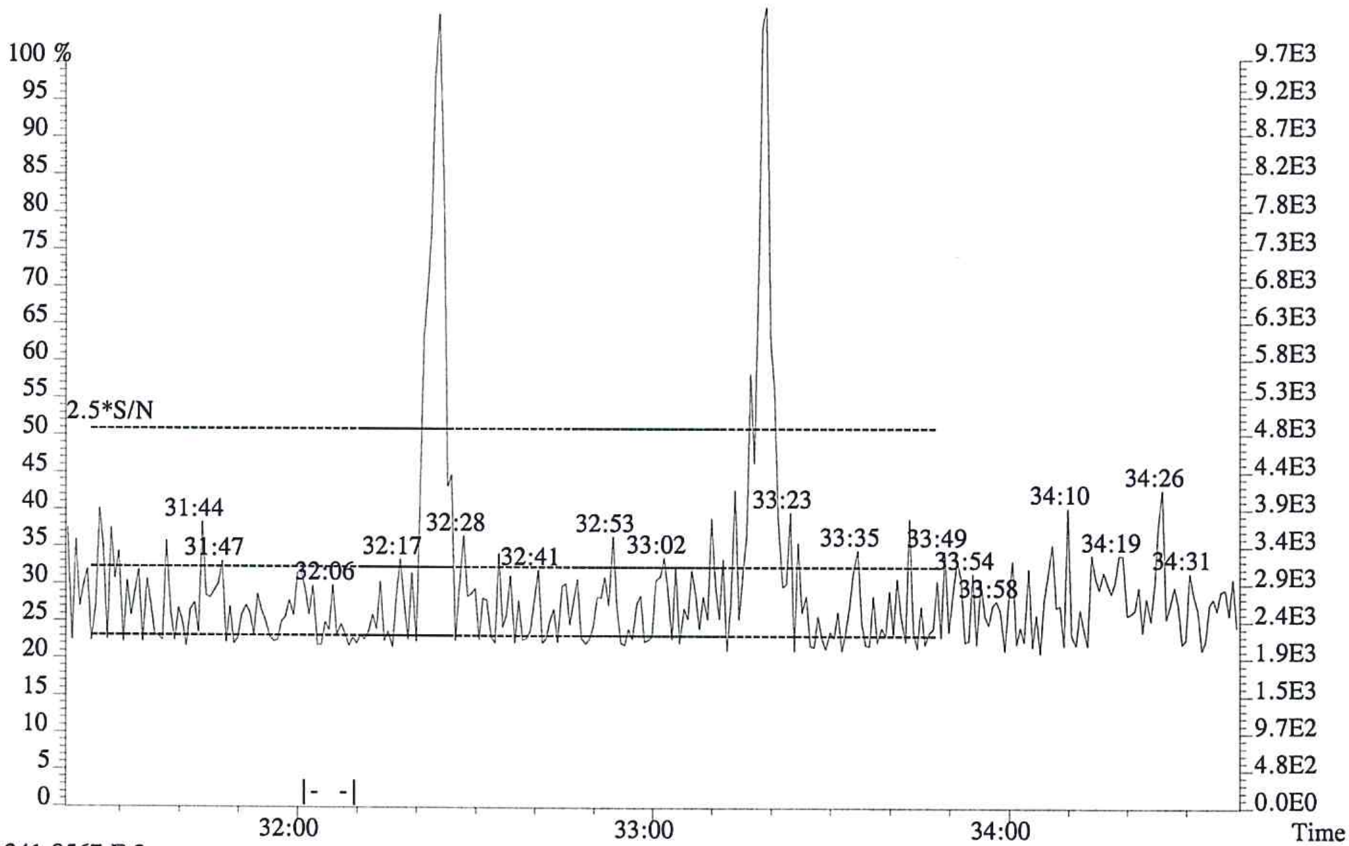
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



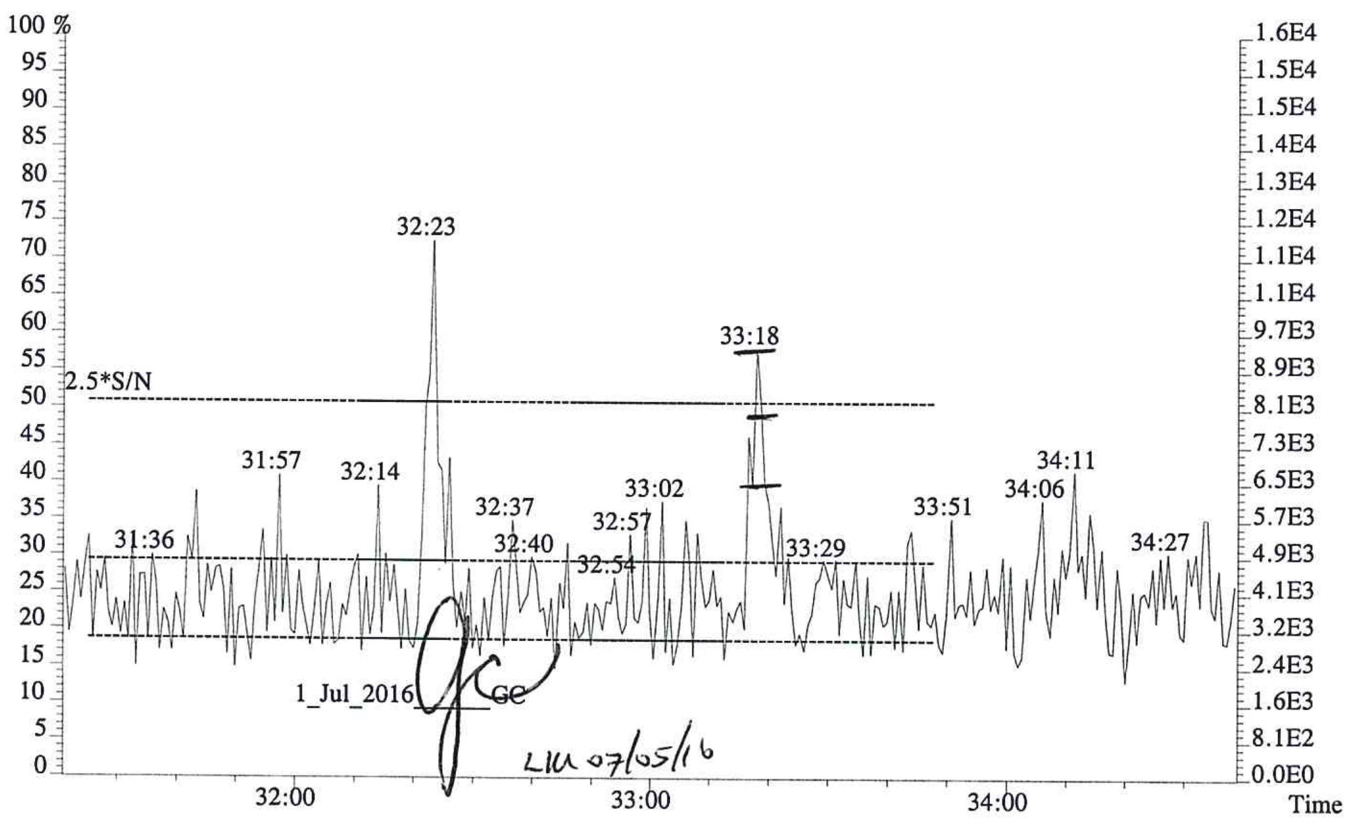
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



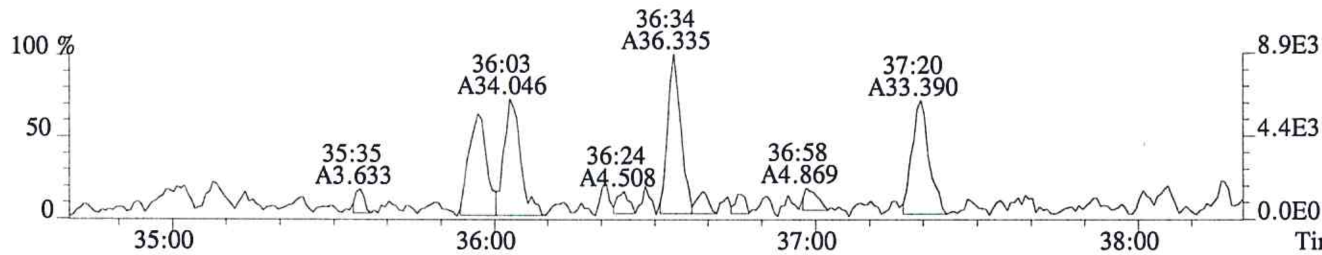
File:P603994 #1-298 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006
339.8597 F:2



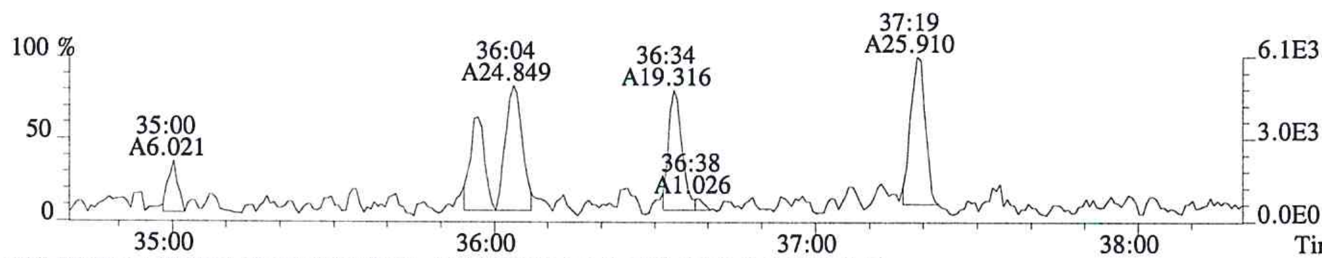
341.8567 F:2



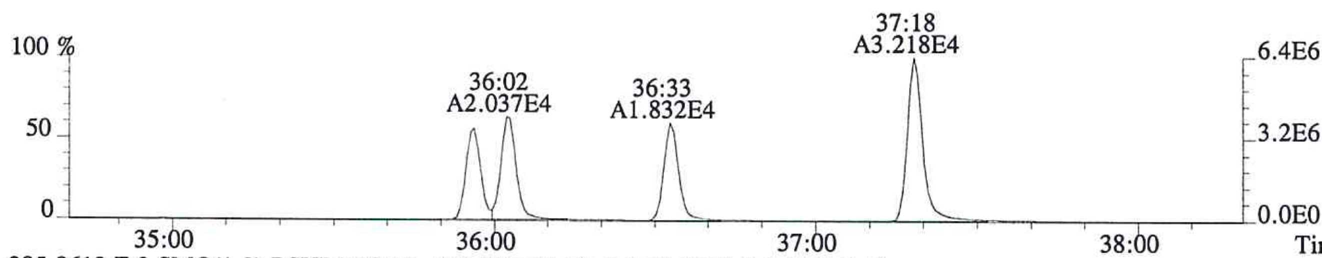
File:P603994 #1-329 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



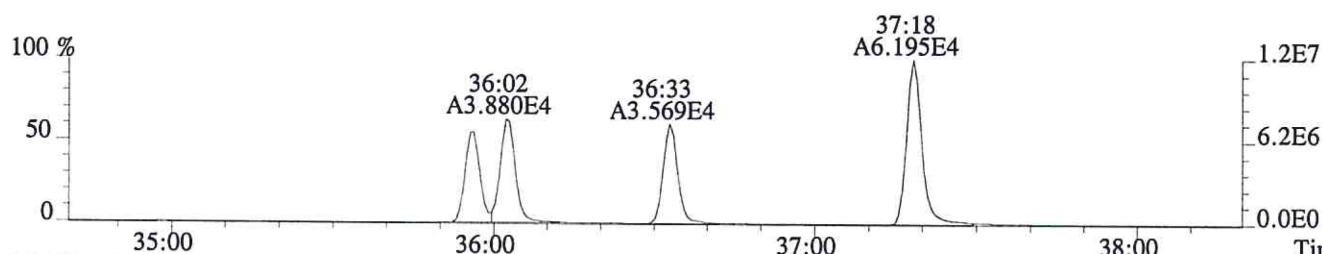
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



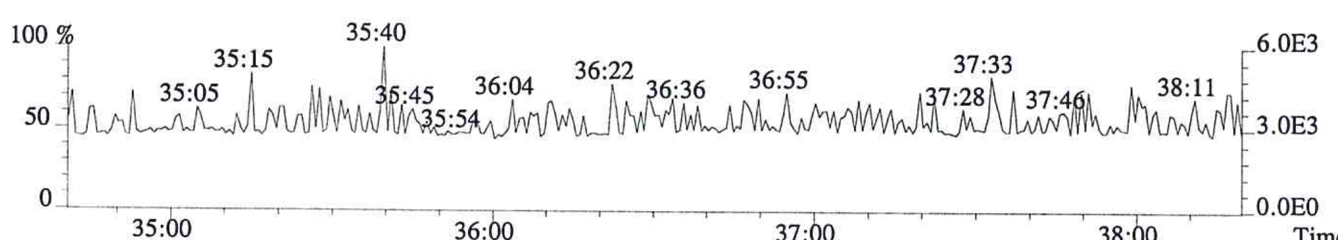
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



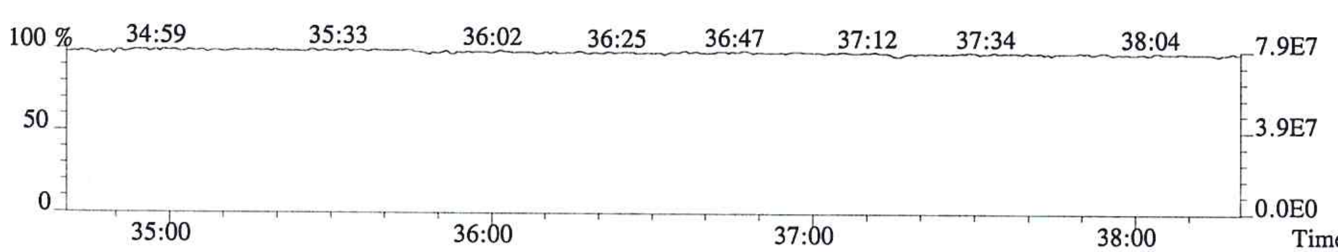
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

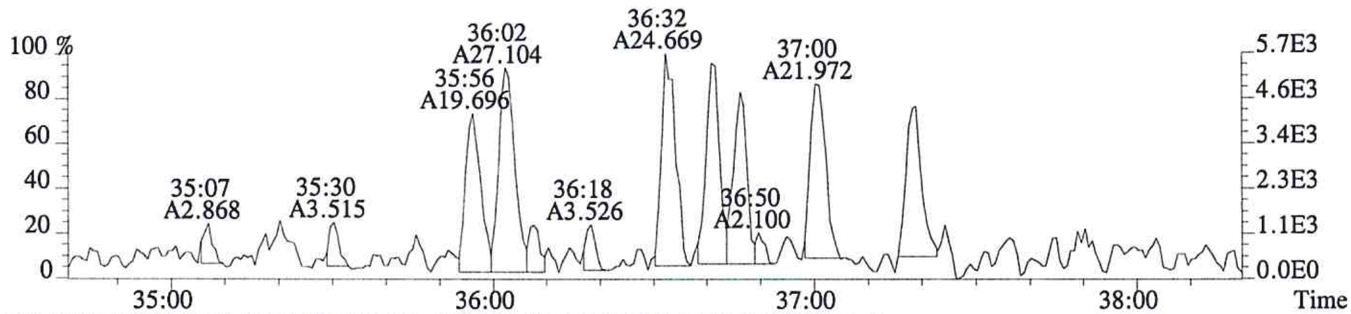


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

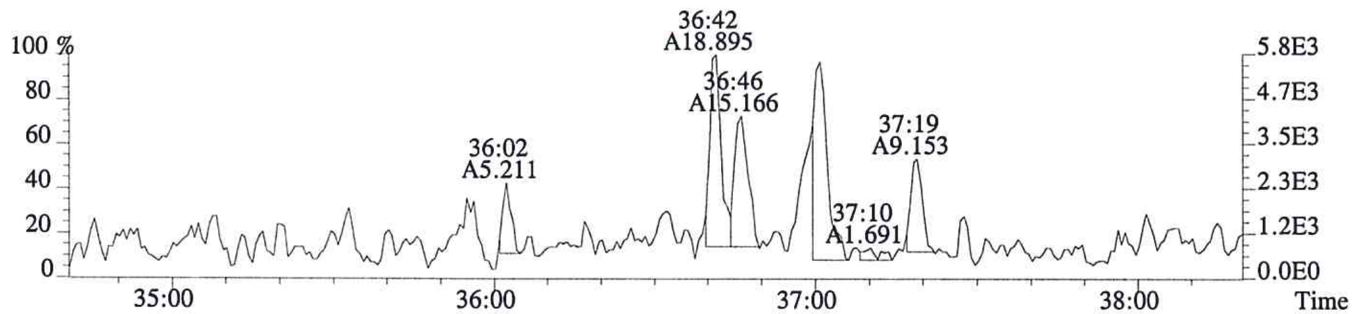


File:P603994 #1-329 Acq:25-JUN-2016 20:37:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600282-006

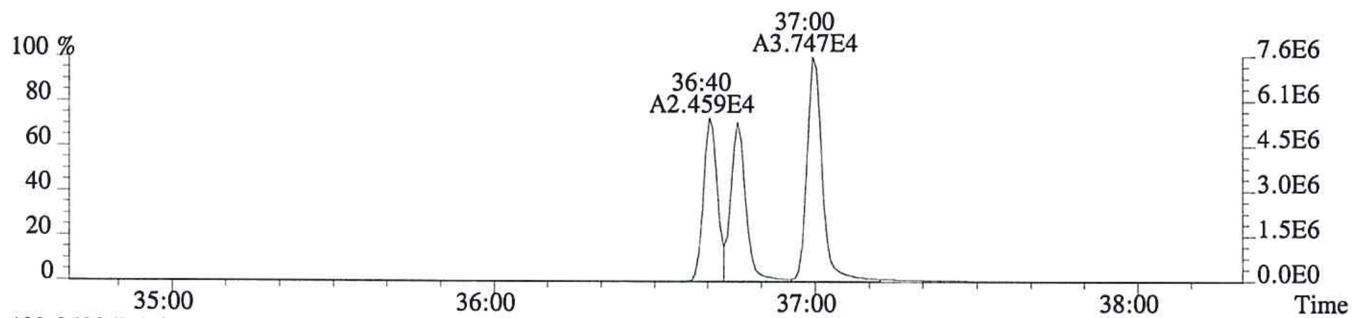
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



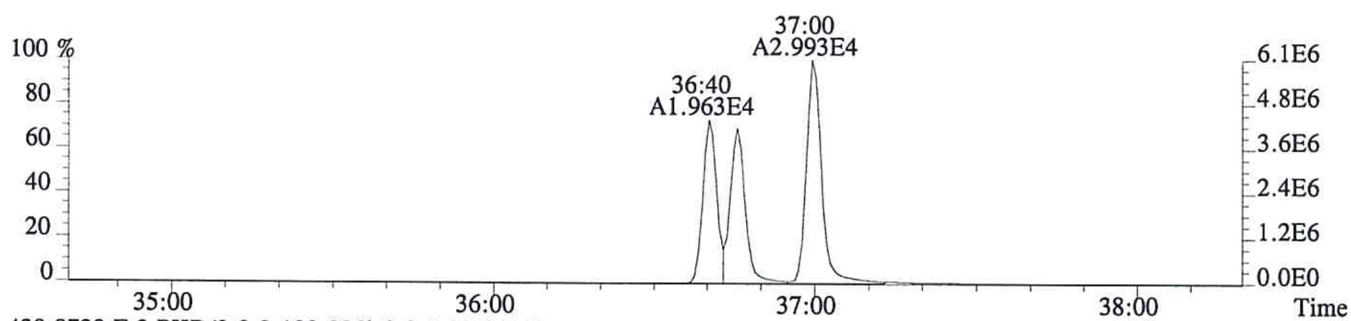
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



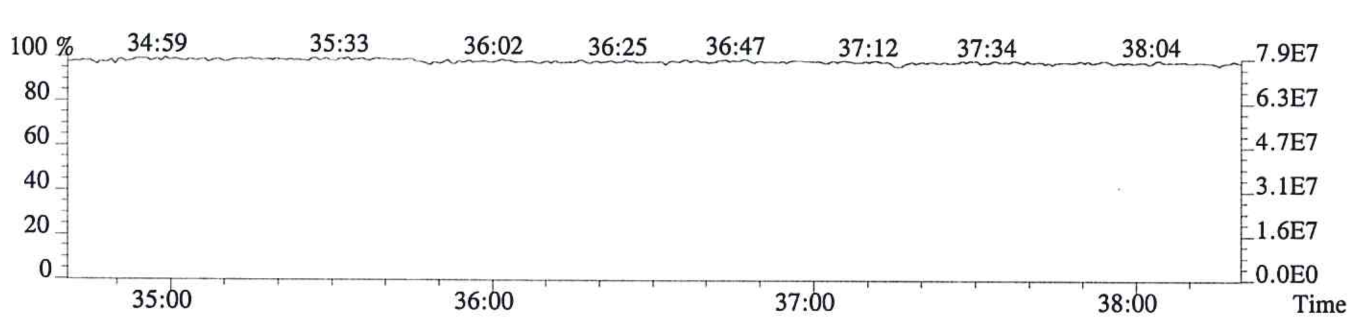
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 Sample ID: EQ1600219-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.809e+01	3.936e+01	1.22	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.349e+04	4.194e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	4.984e+04	3.137e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.723e+04	2.963e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.878e+04	5.649e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.559e+04	3.261e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.155e+04	3.965e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.547e+04	2.995e+04	1.18	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	6.727e+01				no	0.945

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Houston, TX 77099
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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 LAB. ID: EQ1600219-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.18e+03	*	*	3.42e+03	*
3	2,3,4,7,8-PeCDF	9.96e+03	6.92e+02	1.4e+01	8.22e+03	1.70e+03	4.8e+00
11	2,3,7,8-TCDD	*	1.70e+03	*	*	1.42e+03	*
18	13C-2,3,7,8-TCDF	6.07e+06	6.55e+03	9.3e+02	7.58e+06	3.48e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	9.10e+06	7.38e+03	1.2e+03	5.72e+06	5.96e+03	9.6e+02
20	13C-2,3,4,7,8-PeCDF	9.20e+06	7.38e+03	1.2e+03	5.79e+06	5.96e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	5.77e+06	1.08e+03	5.3e+03	1.10e+07	2.23e+03	4.9e+03
26	13C-1,2,3,4-TCDF	*	6.55e+03	*	*	3.48e+03	*
27	13C-2,3,7,8-TCDD	4.95e+06	9.06e+03	5.5e+02	6.29e+06	3.78e+03	1.7e+03
33	13C-1,2,3,4-TCDD	6.03e+06	9.06e+03	6.7e+02	7.53e+06	3.78e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.29e+06	2.17e+03	3.4e+03	5.91e+06	1.44e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.20e+04	2.08e+03	5.8e+00			

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 39 Totals Name: Total Penta-Furans2

Run: 8 File: P603993 Sample:1 Injection:1 Function:2

Acquired: 25-JUN-16 19:48:09 Processed: 1-JUL-16 11:44:18

Mass: 339.8600 341.8570 Tot Response: 1.28e+02 RRF: 0.9596

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:23	7.46e+01	5.34e+01	1.40	yes	1.28e+02	1,2,3,7,8-PeCDF	n	n

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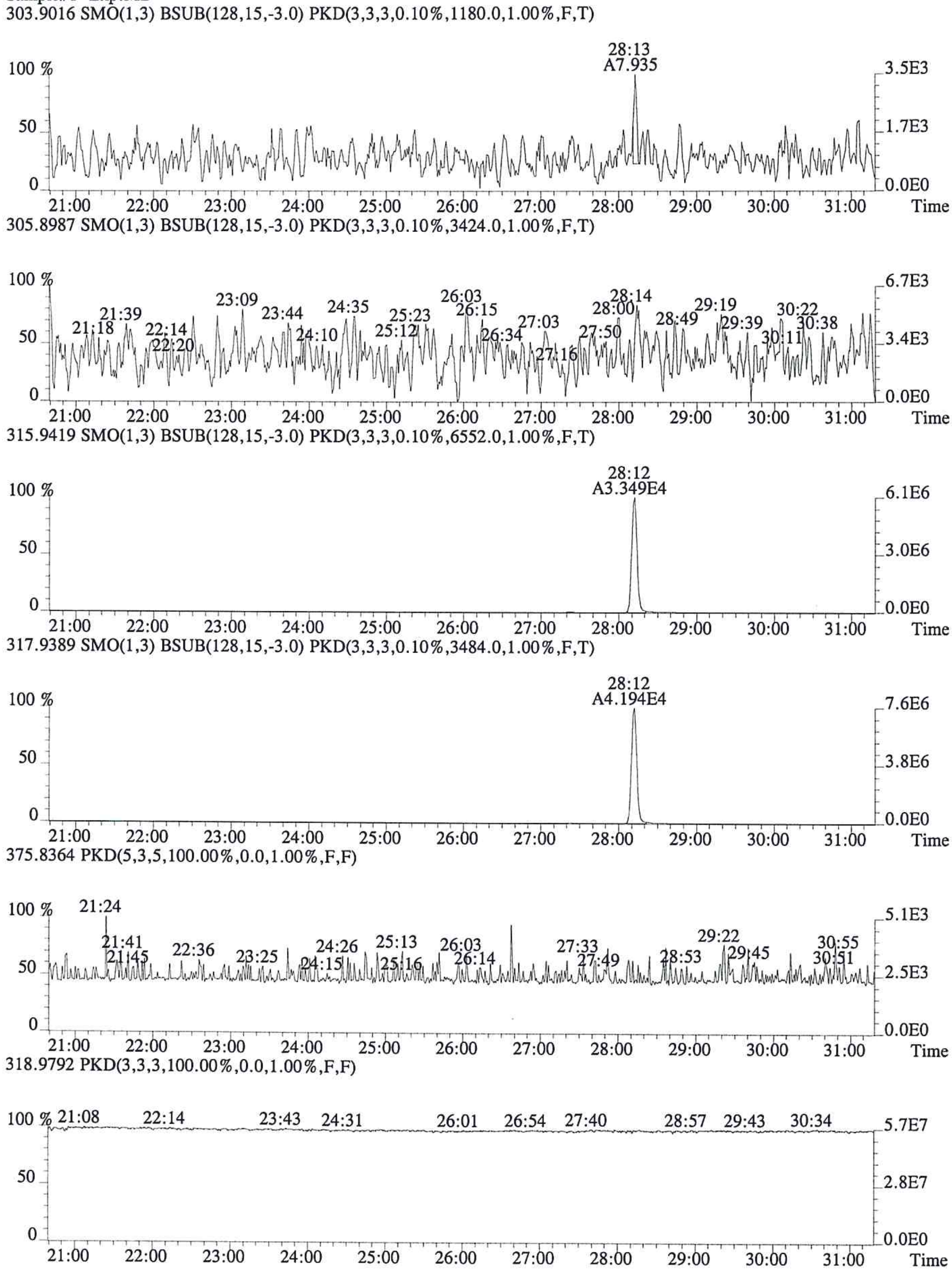
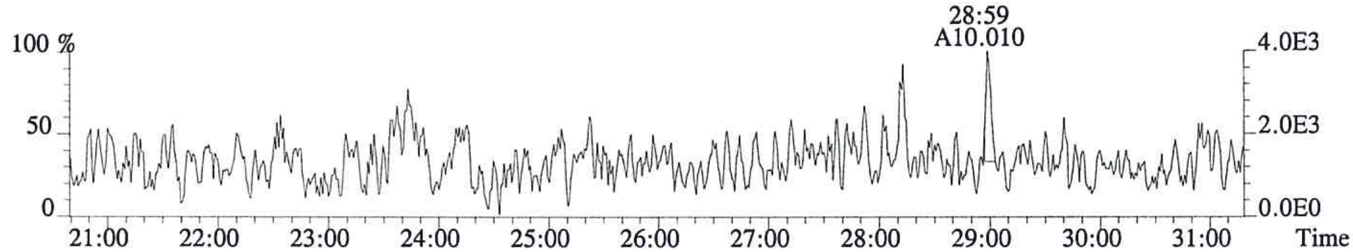
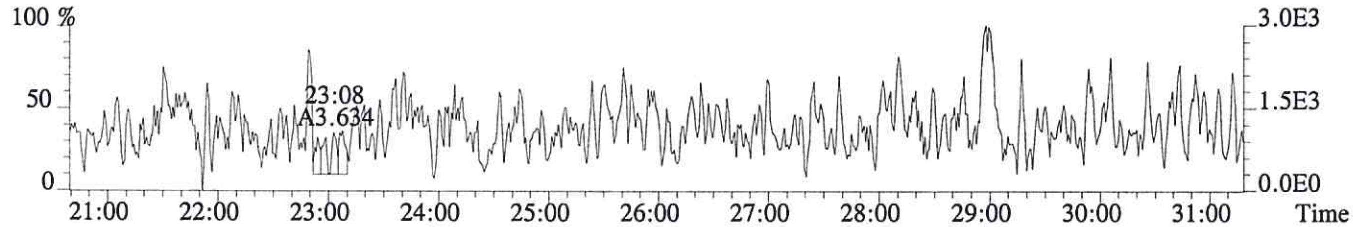
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB



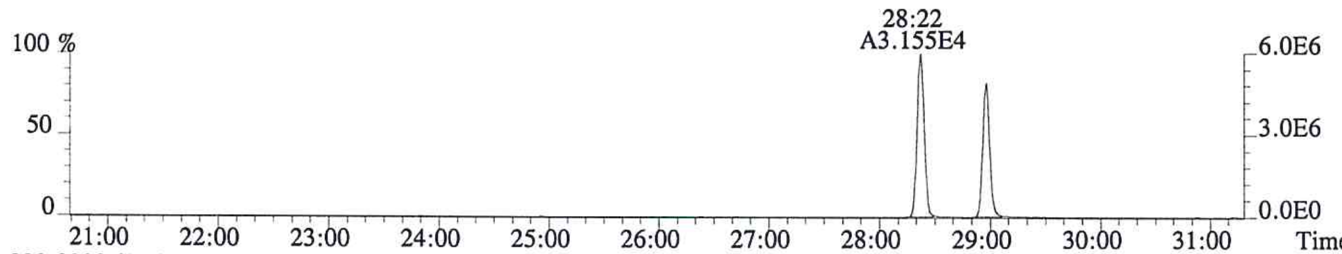
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



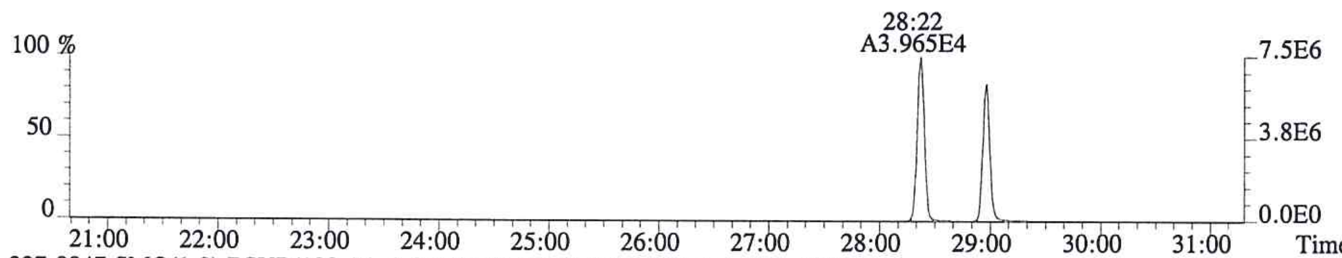
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



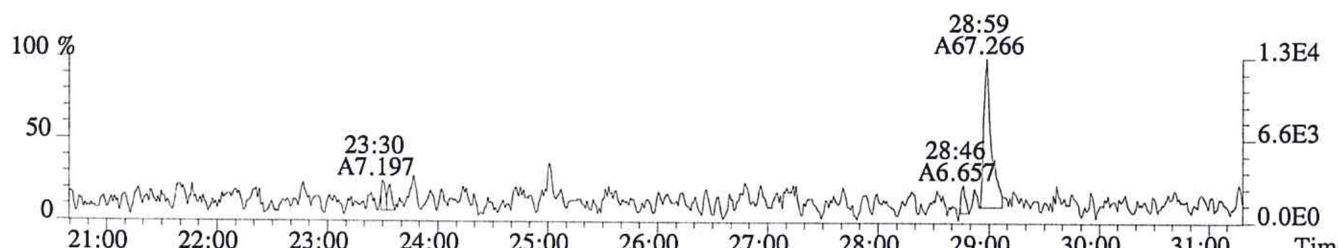
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9060.0,1.00%,F,T)



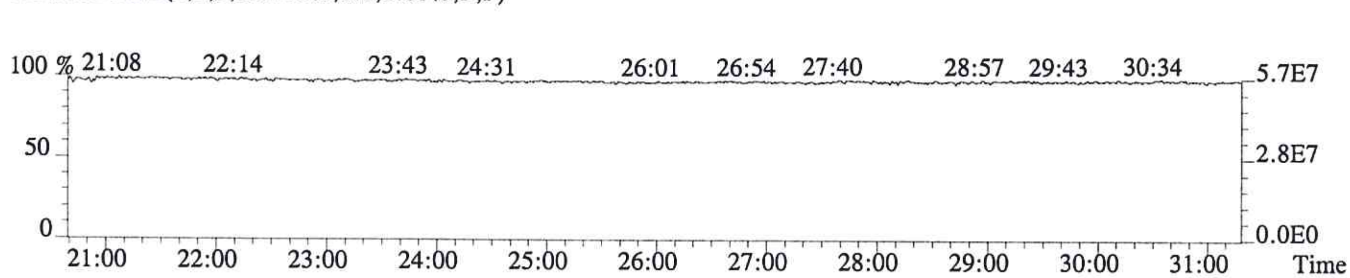
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



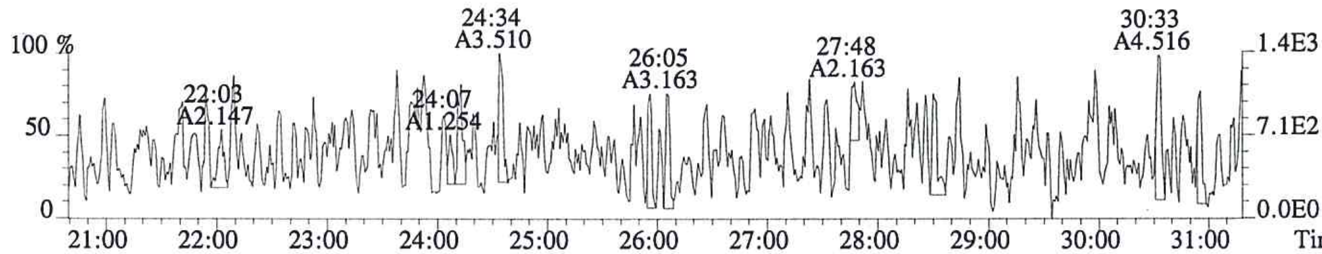
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



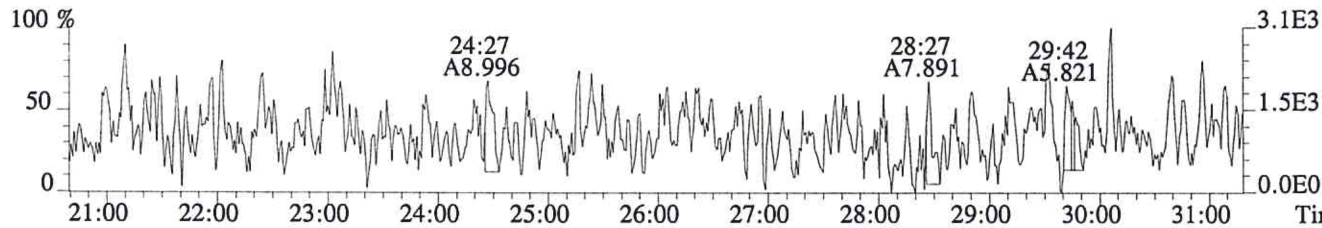
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



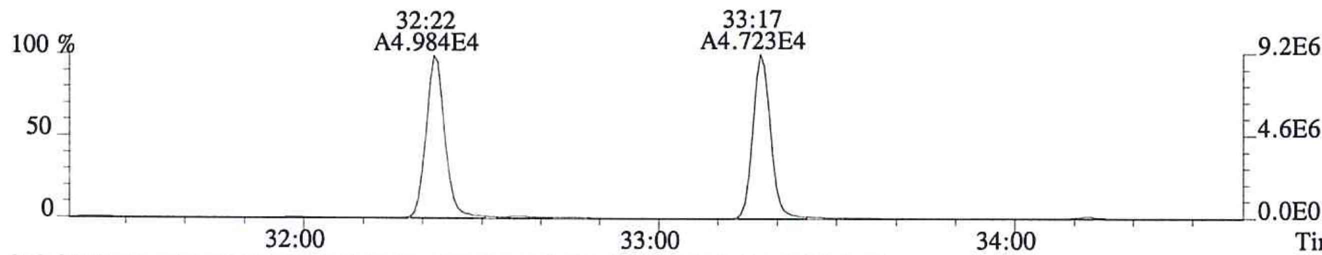
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



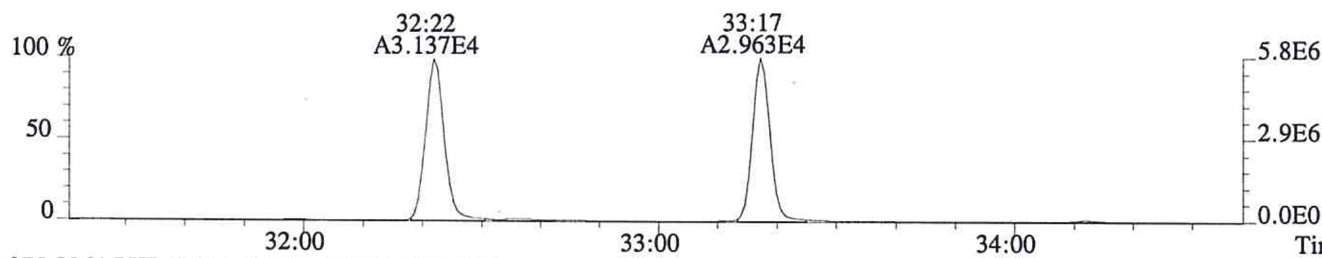
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



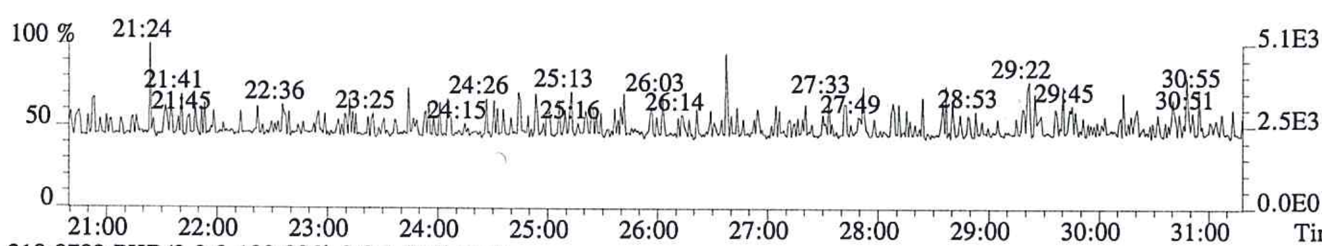
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



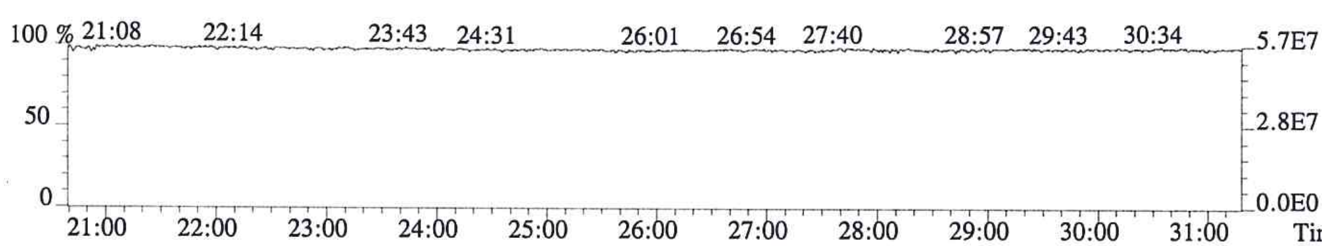
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5956.0,1.00%,F,T)



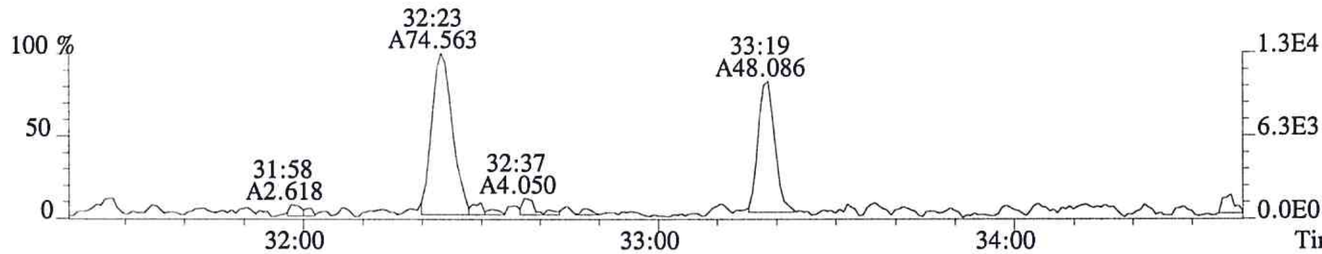
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



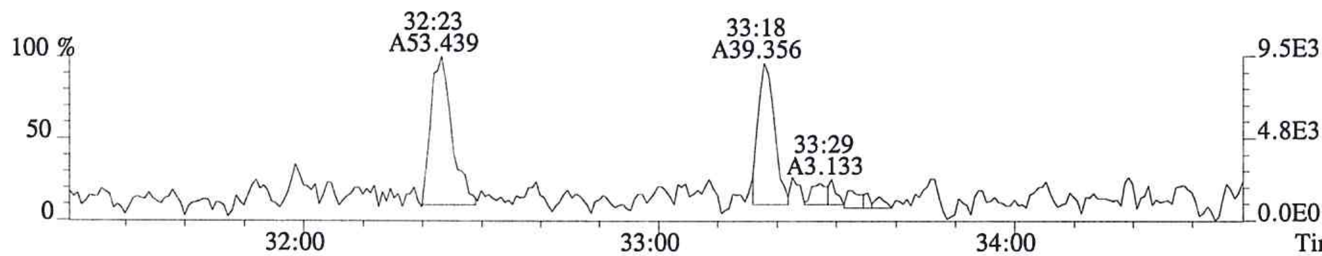
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



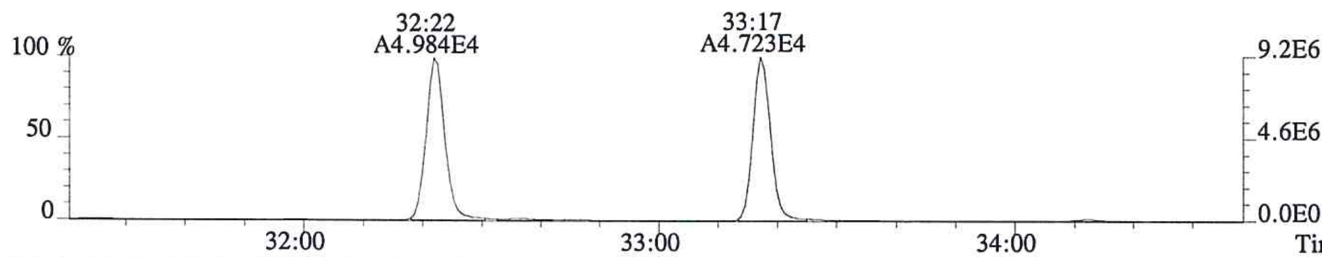
File:P603993 #1-298 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



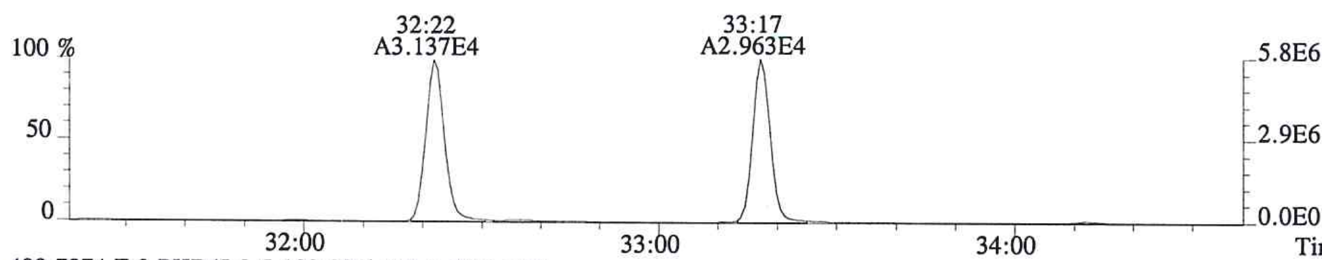
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



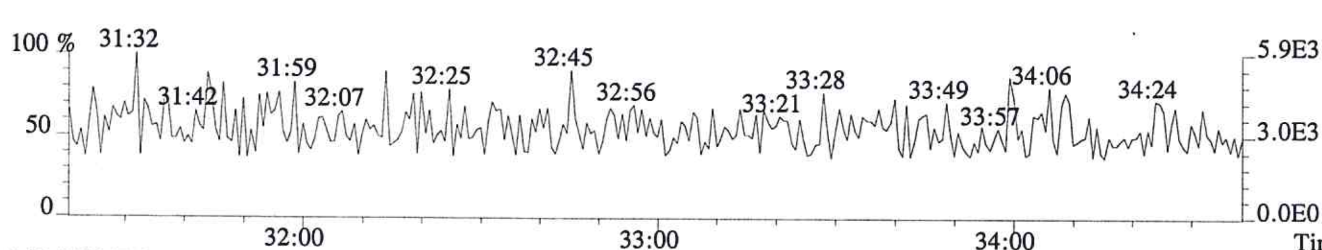
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



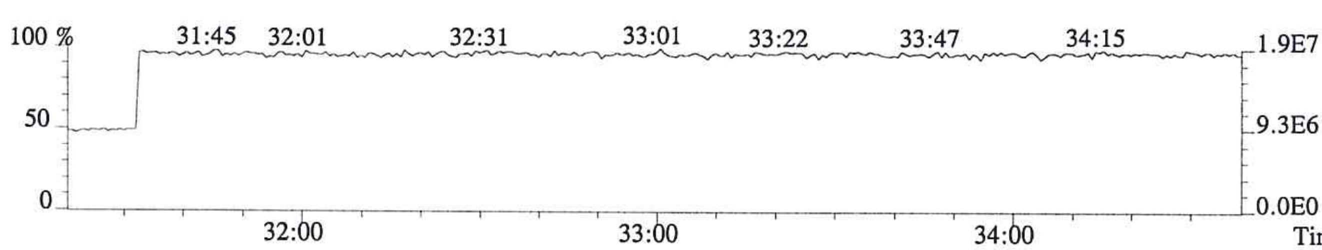
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5956.0,1.00%,F,T)



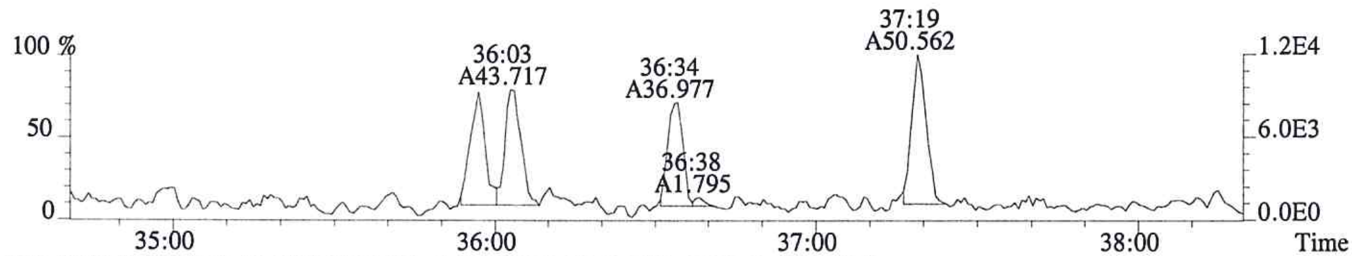
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



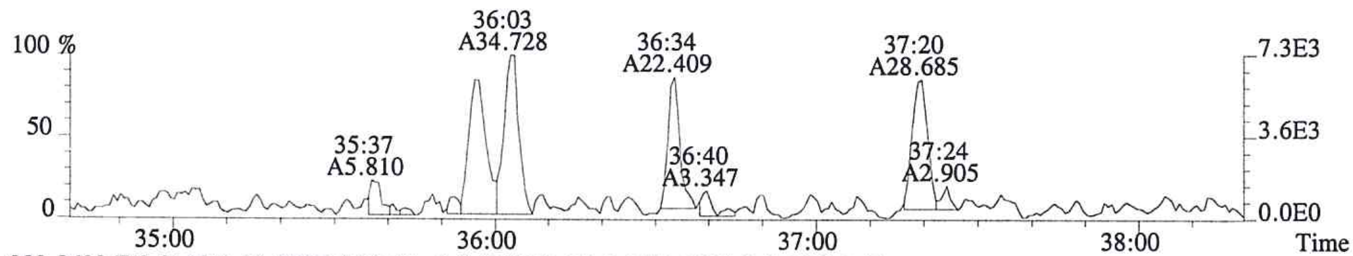
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



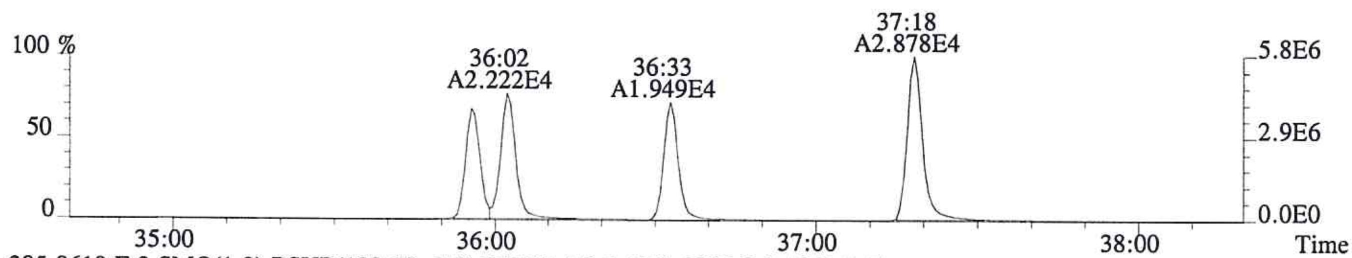
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



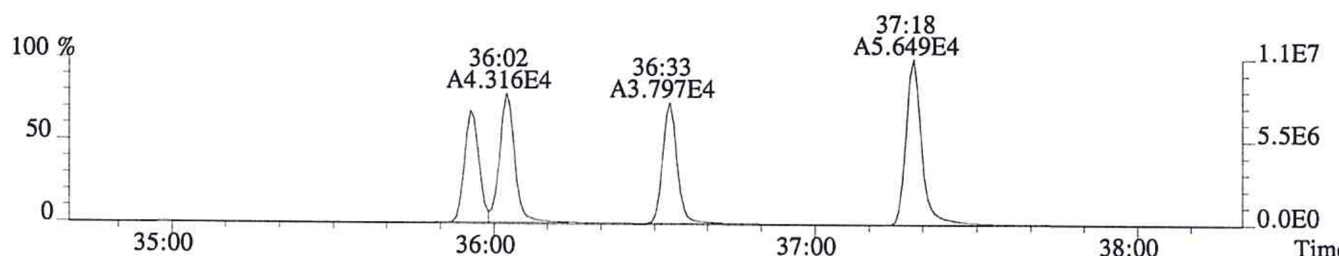
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



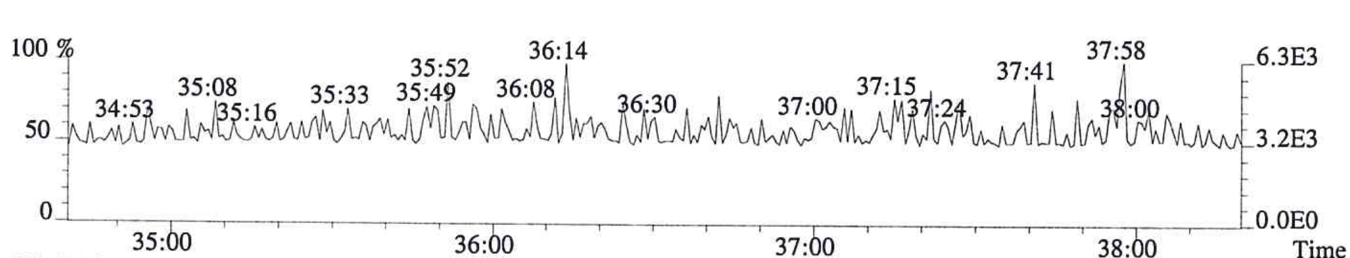
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



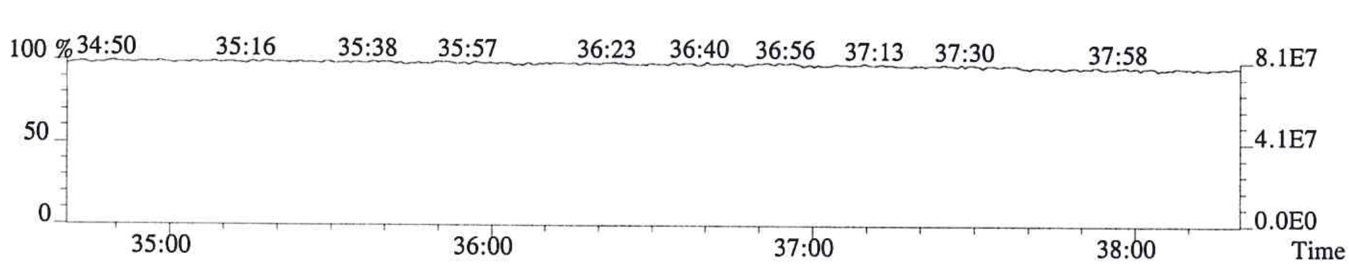
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



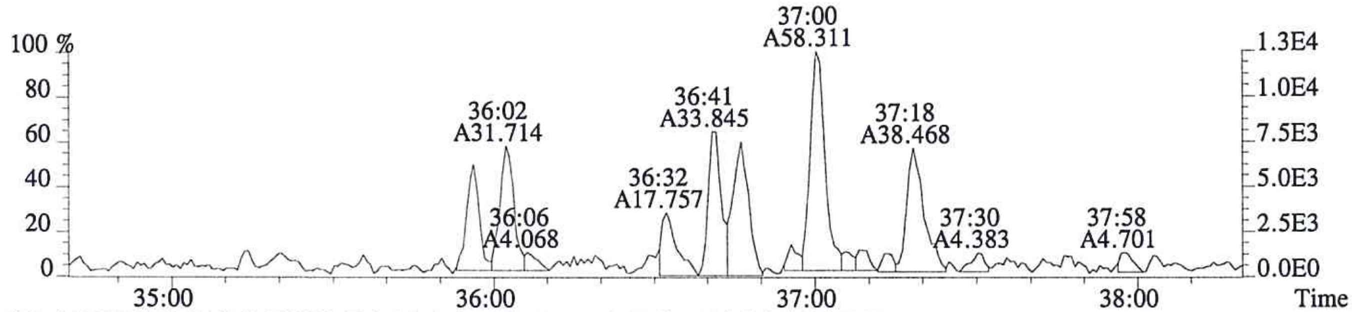
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



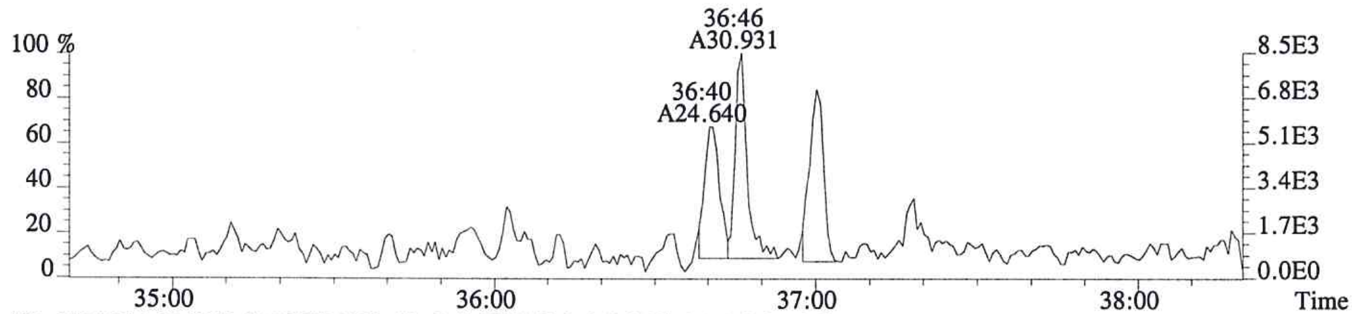
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



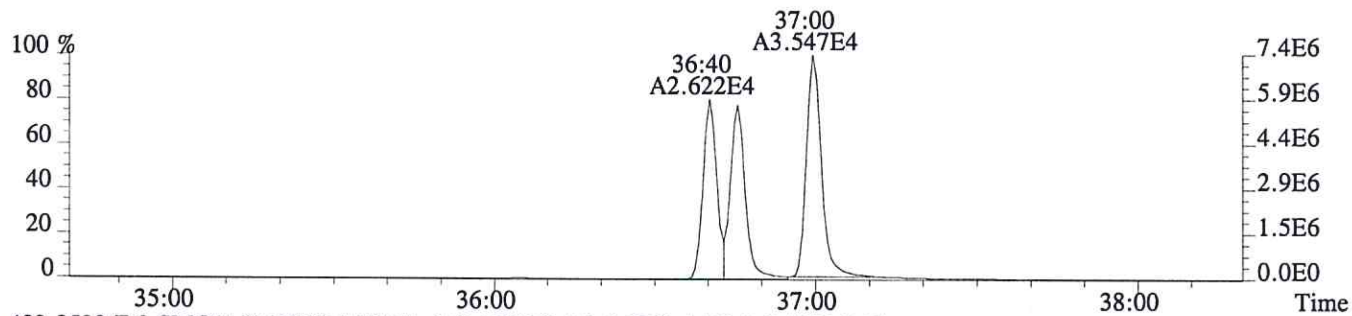
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



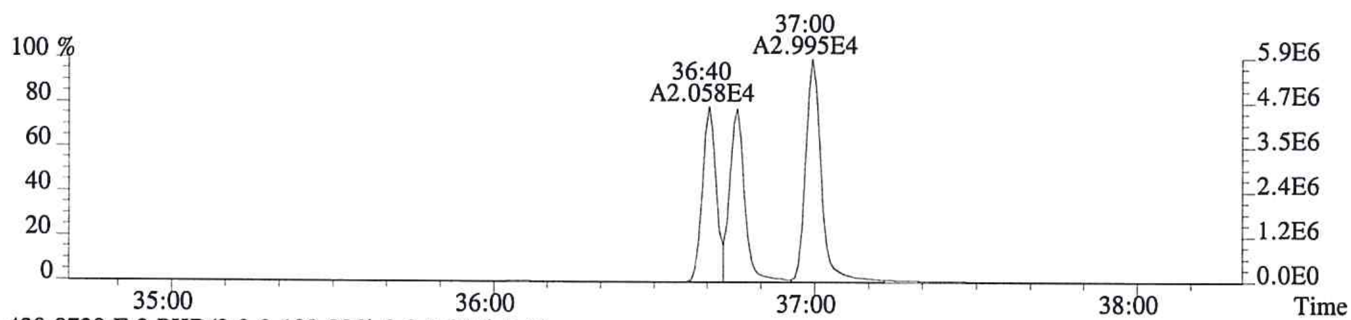
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



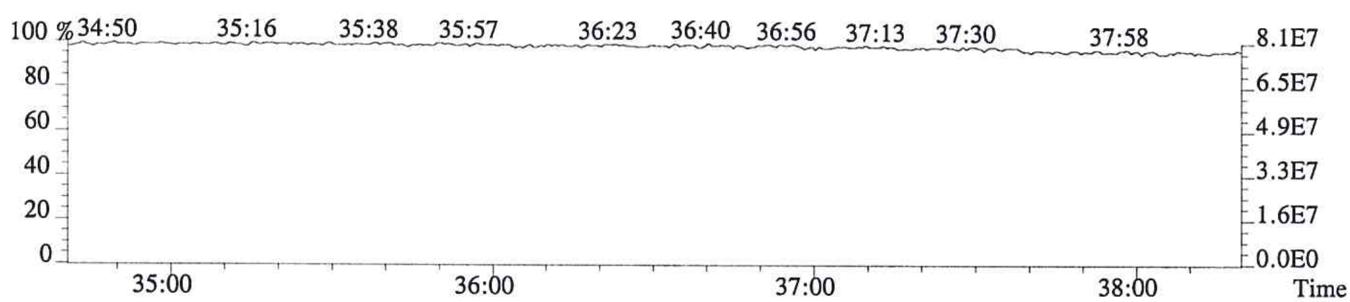
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 Sample ID: EQ1600219-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	2.801e+03	3.660e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.190e+04	1.413e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	2.231e+03	2.891e+03	0.77	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.350e+04	4.172e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.040e+04	3.141e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.698e+04	2.983e+04	1.57	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.332e+04	6.463e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.534e+04	3.171e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.878e+04	3.661e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.503e+04	2.861e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.948e+01				no	0.945

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 LAB. ID: EQ1600219-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.03e+05	7.96e+02	6.3e+02	6.62e+05	2.36e+03	2.8e+02
3	2,3,4,7,8-PeCDF	4.38e+06	2.79e+03	1.6e+03	2.85e+06	2.28e+03	1.2e+03
11	2,3,7,8-TCDD	4.39e+05	1.02e+03	4.3e+02	5.62e+05	1.12e+03	5.0e+02
18	13C-2,3,7,8-TCDF	6.10e+06	3.89e+03	1.6e+03	7.65e+06	2.73e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.44e+06	5.98e+03	1.6e+03	5.84e+06	6.68e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	9.26e+06	5.98e+03	1.5e+03	5.88e+06	6.68e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.74e+06	7.64e+02	8.8e+03	1.29e+07	1.90e+03	6.8e+03
26	13C-1,2,3,4-TCDF	*	3.89e+03	*	*	2.73e+03	*
27	13C-2,3,7,8-TCDD	4.84e+06	7.32e+03	6.6e+02	6.09e+06	2.92e+03	2.1e+03
33	13C-1,2,3,4-TCDD	5.37e+06	7.32e+03	7.3e+02	6.86e+06	2.92e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.54e+06	1.57e+03	4.8e+03	5.95e+06	1.14e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	1.40e+04	1.43e+03	9.8e+00			

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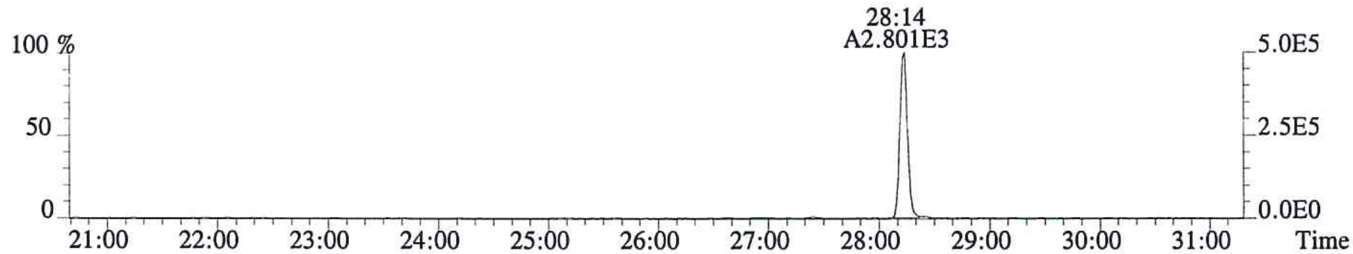
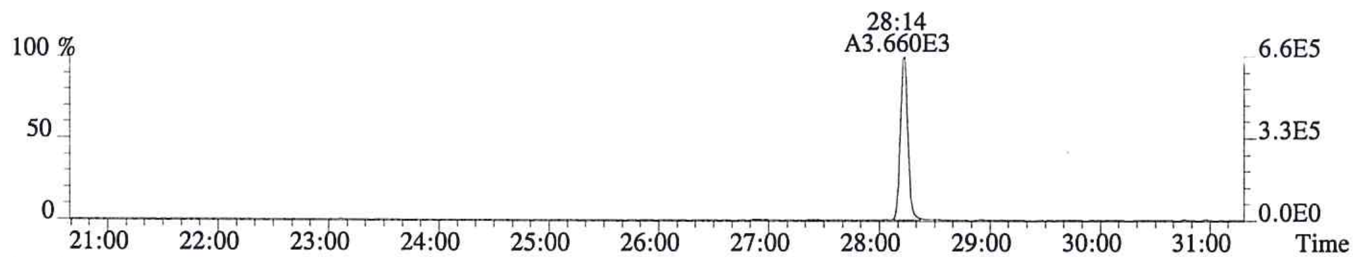
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

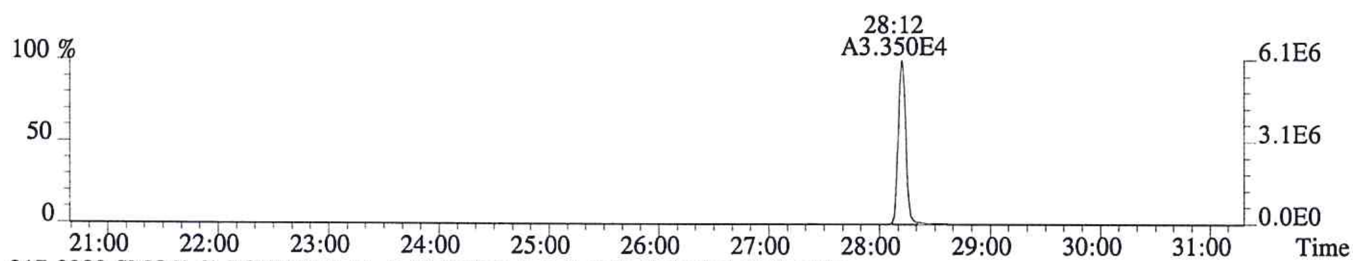
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



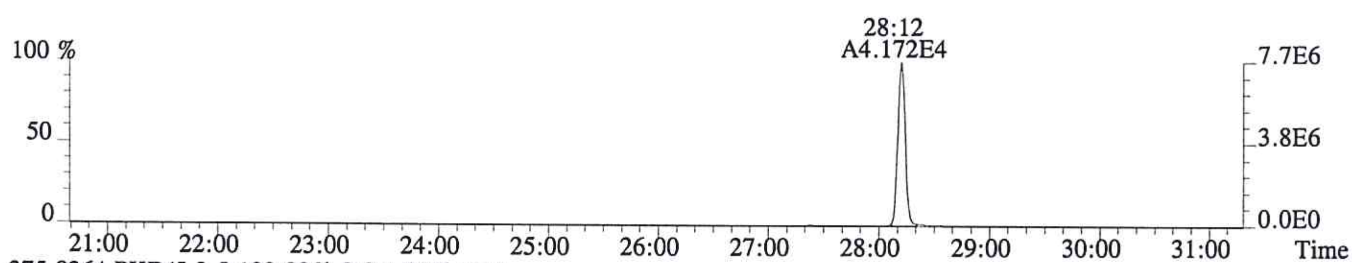
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



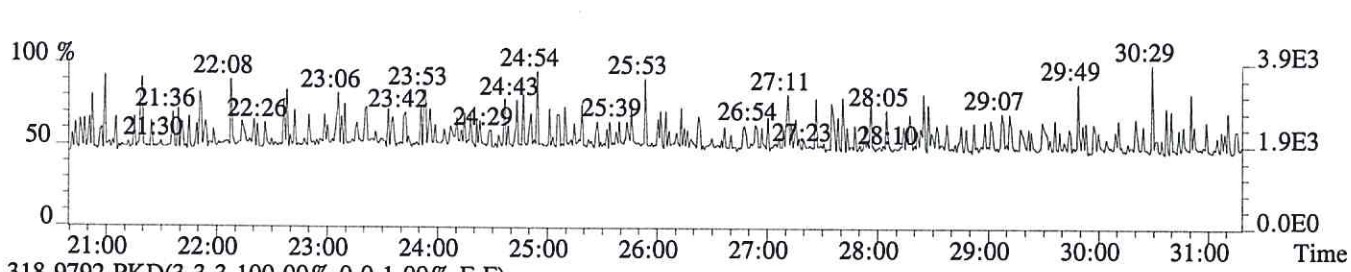
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3892.0,1.00%,F,T)



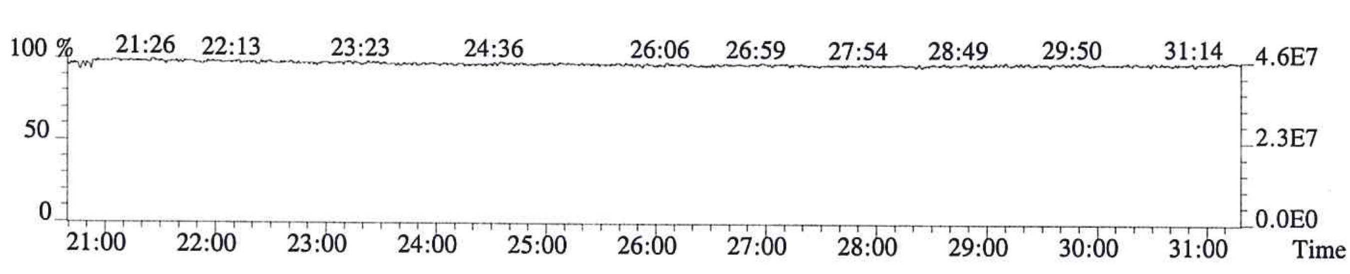
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



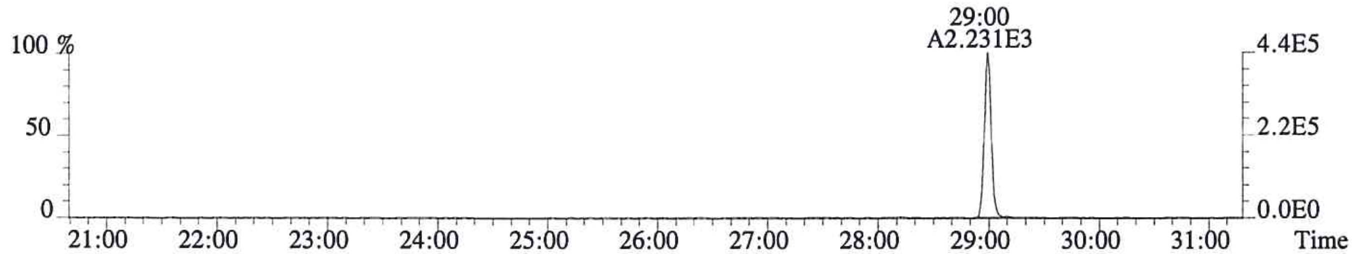
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



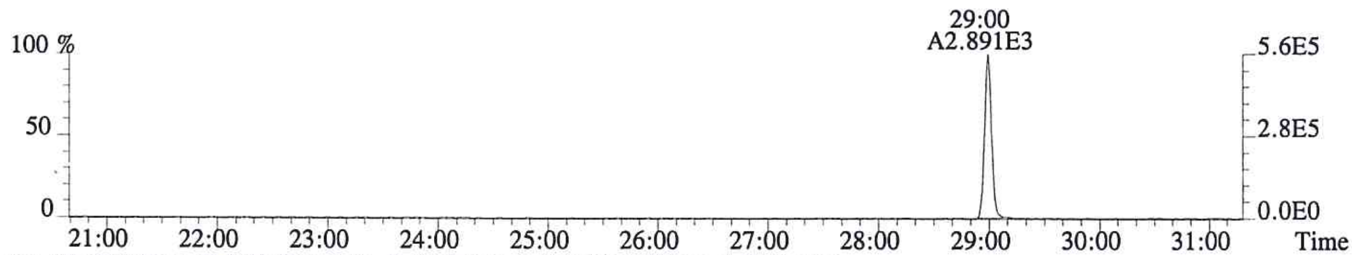
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



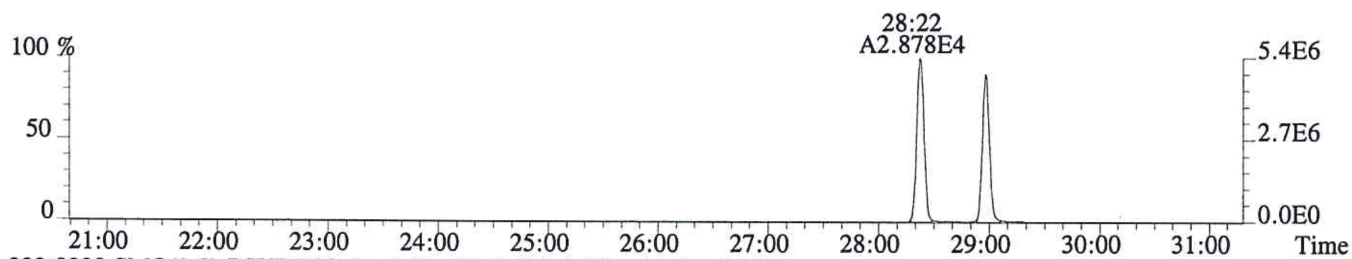
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



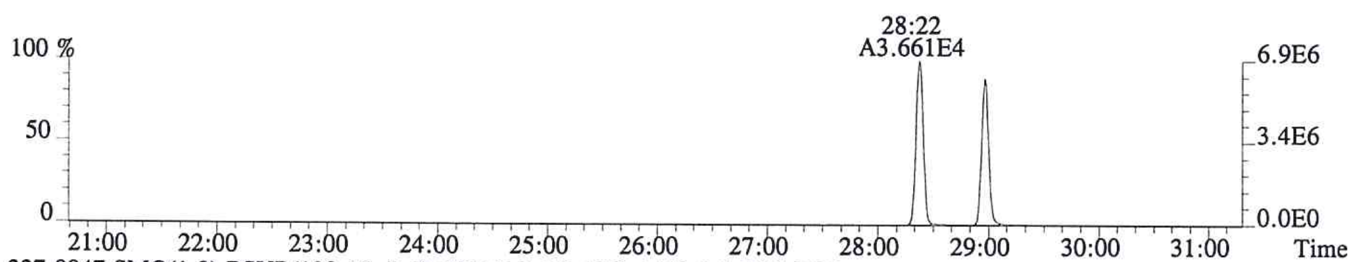
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



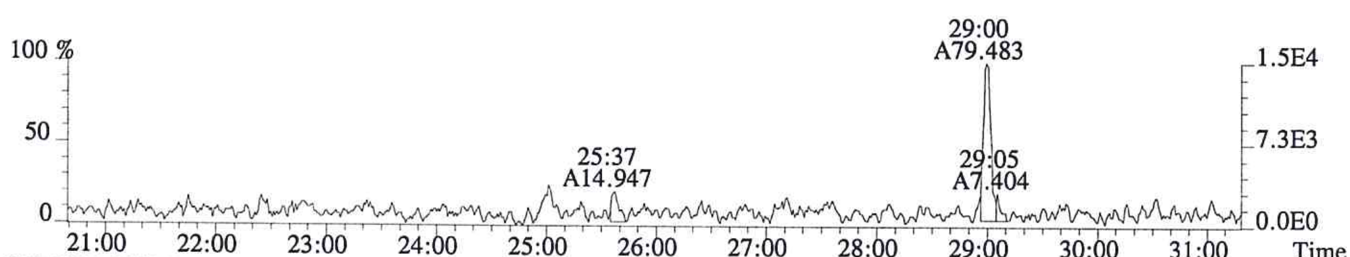
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7316.0,1.00%,F,T)



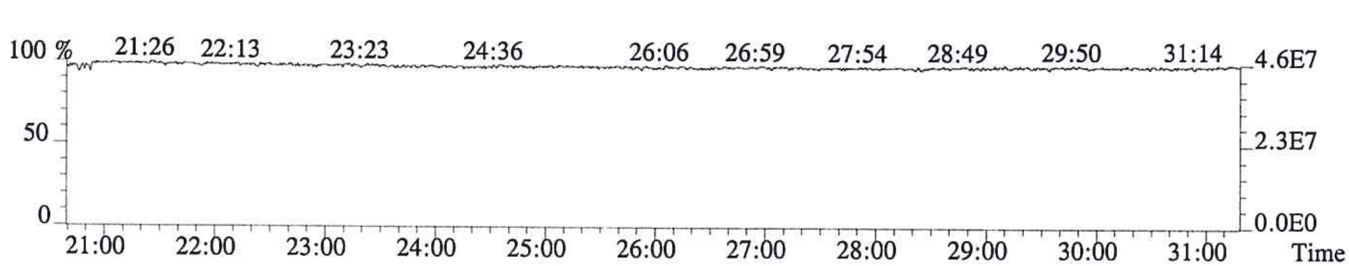
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



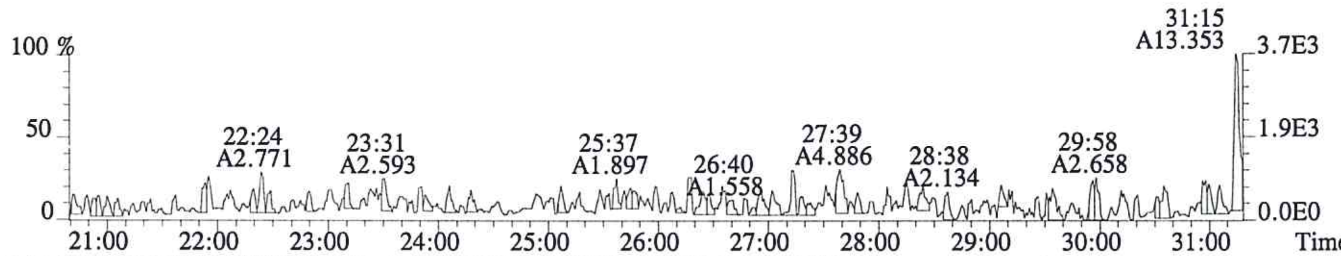
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



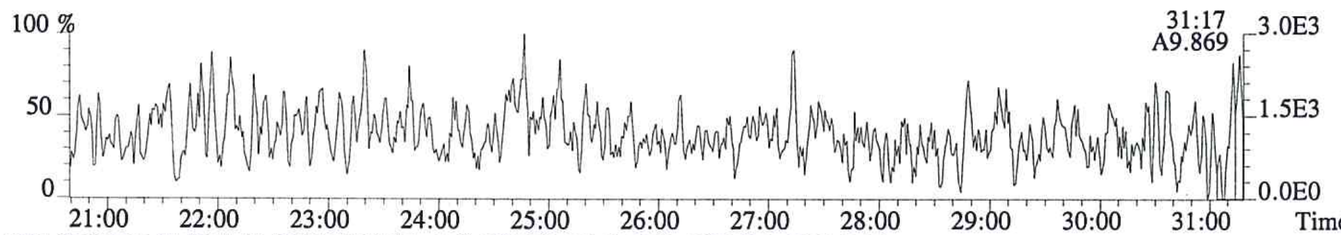
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



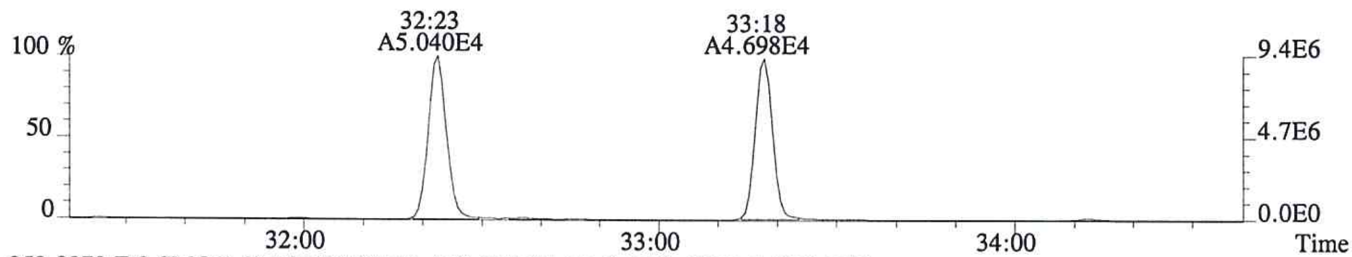
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



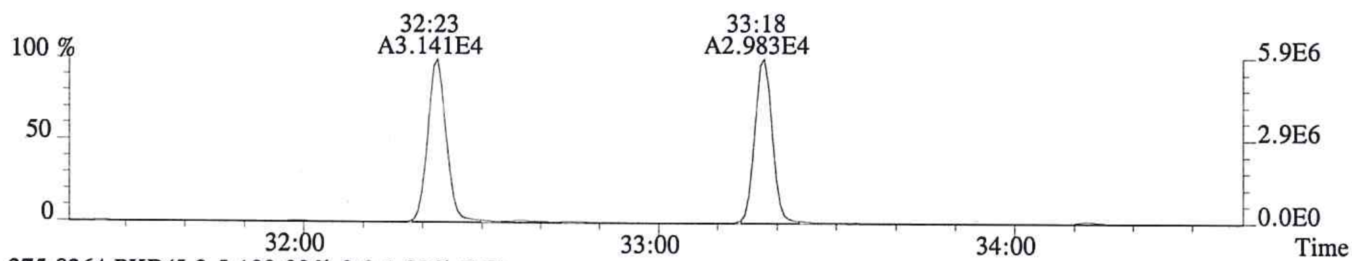
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



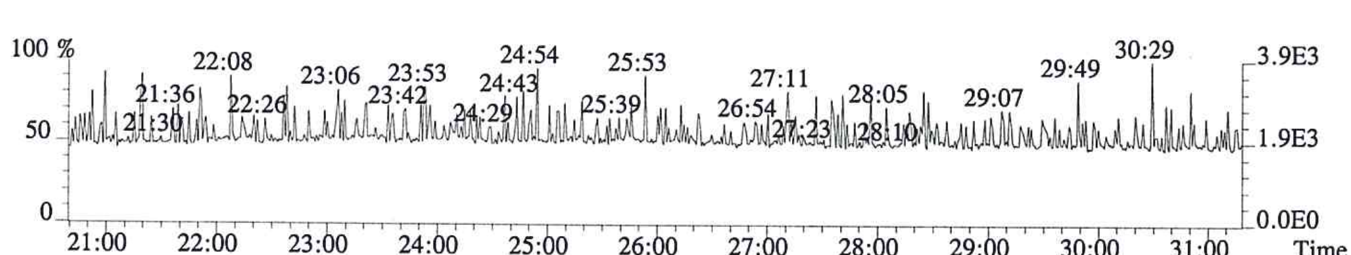
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



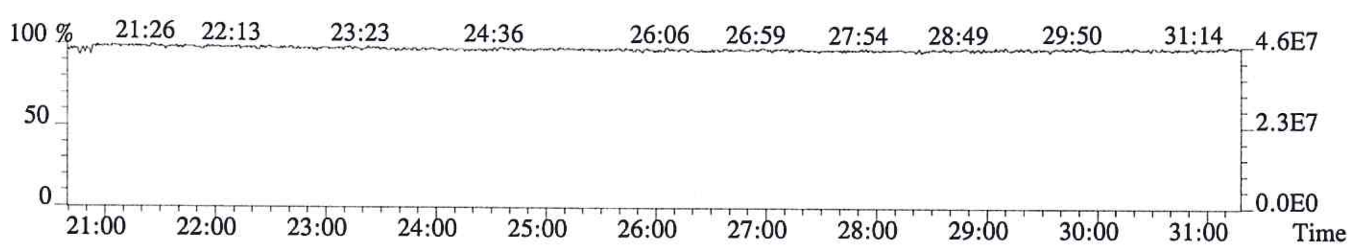
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



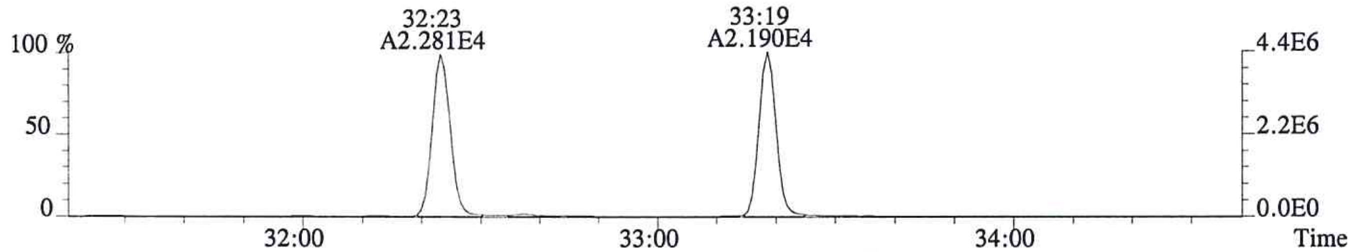
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



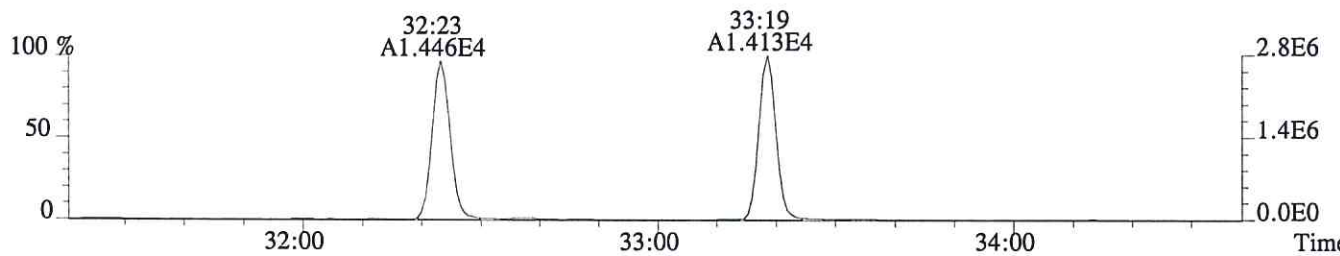
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



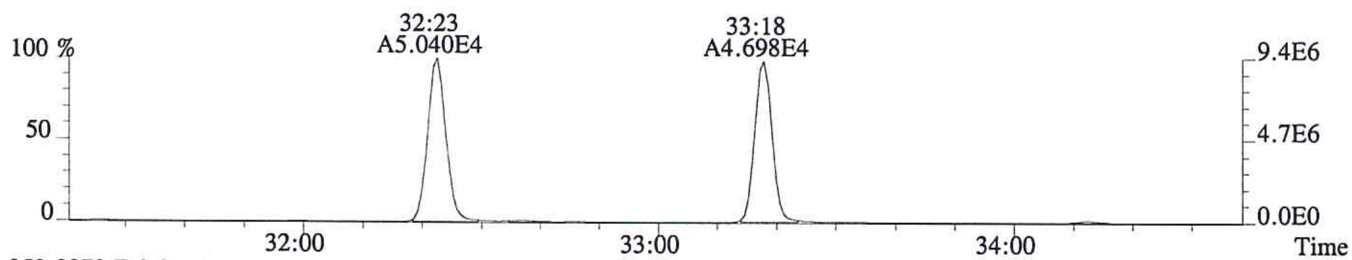
File:P604002 #1-298 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2792.0,1.00%,F,T)



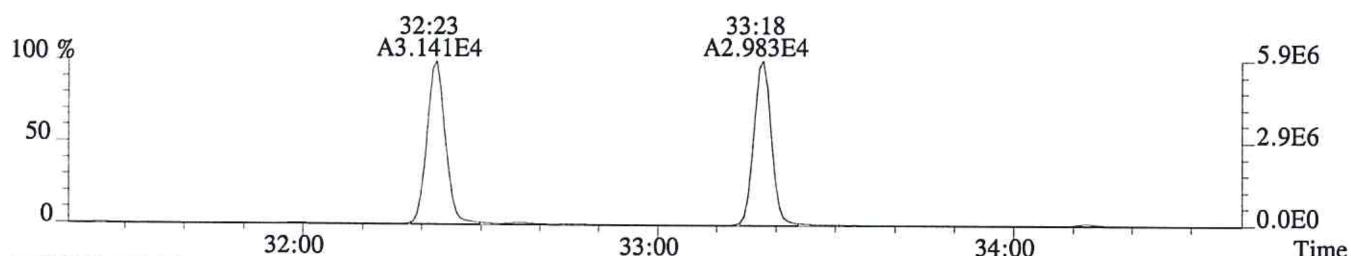
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



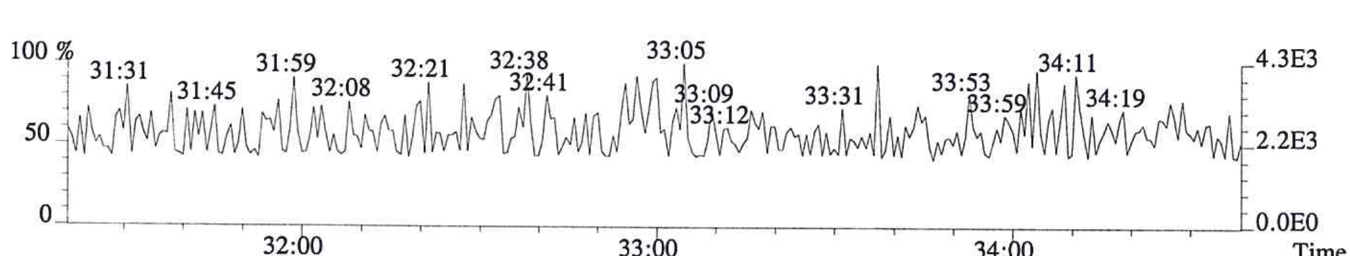
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



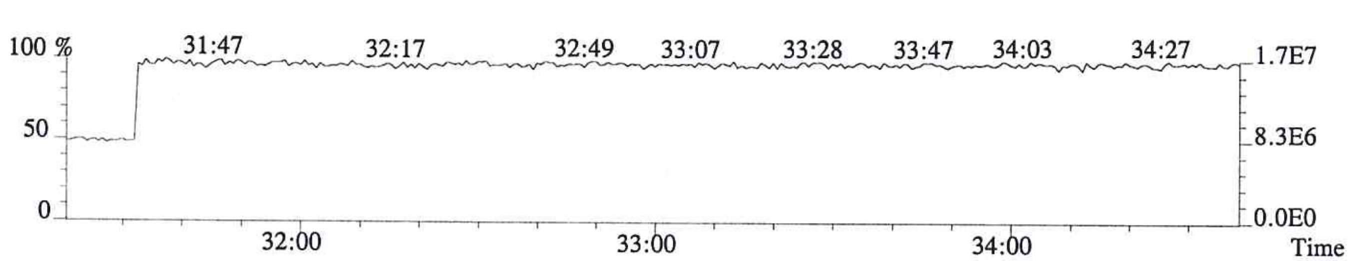
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



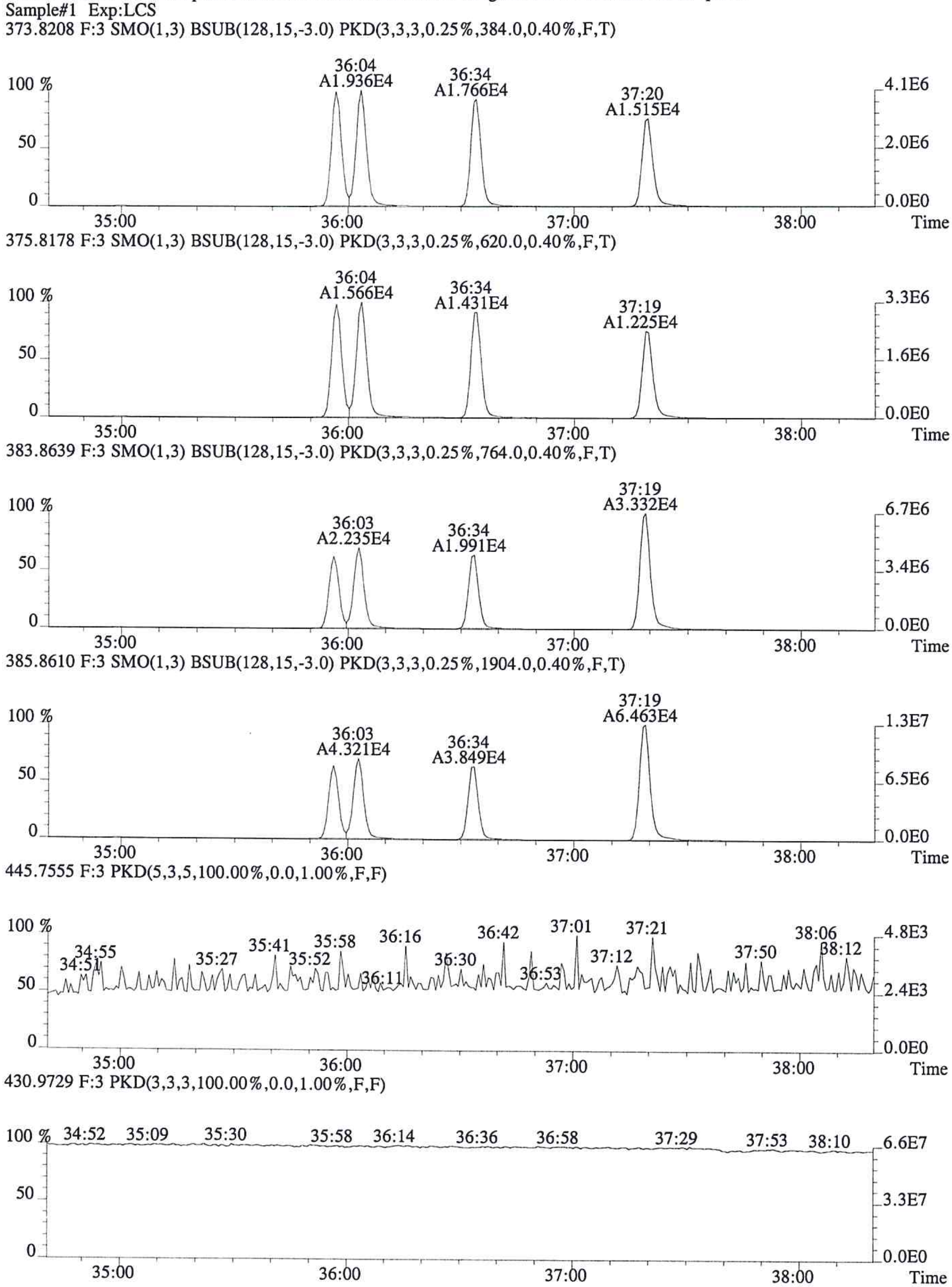
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



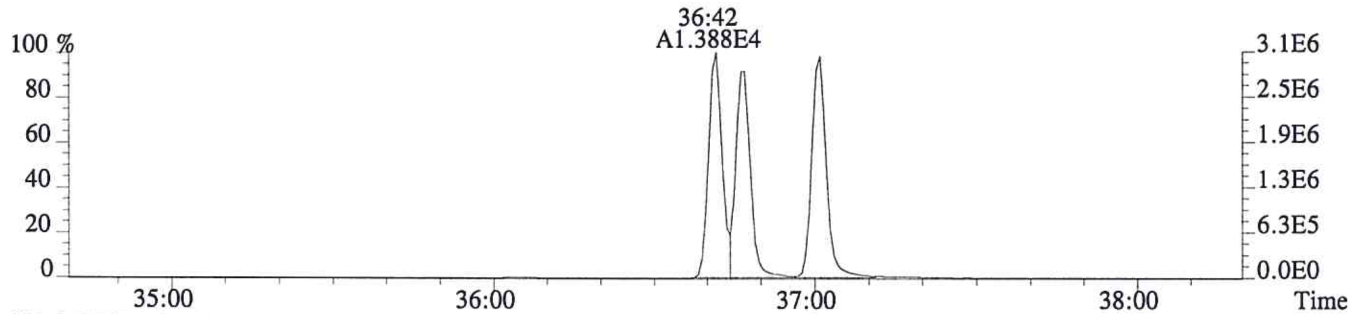
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



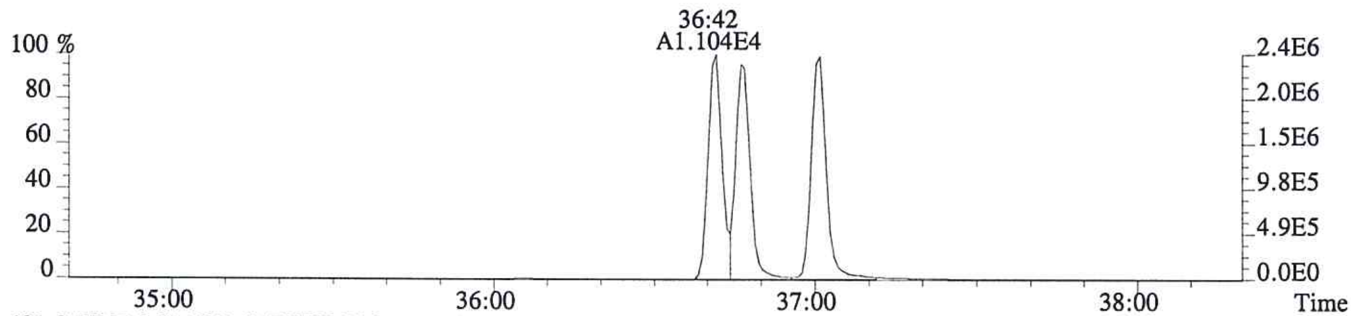
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS



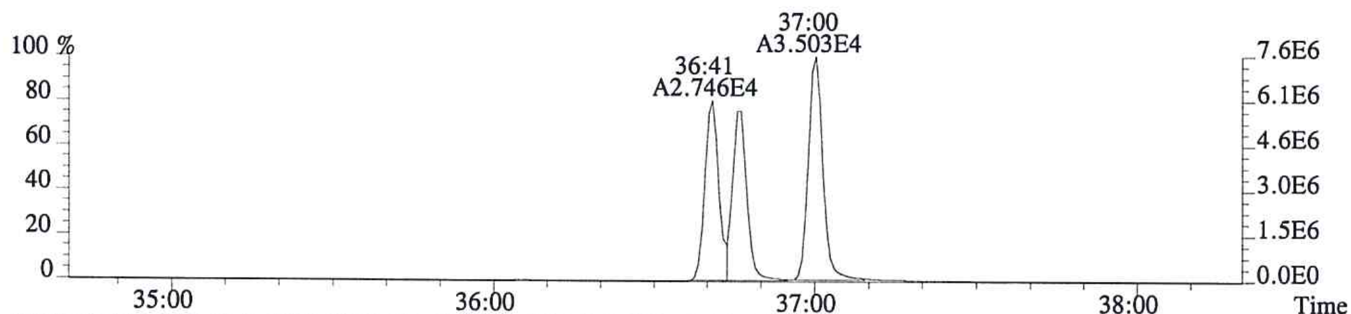
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



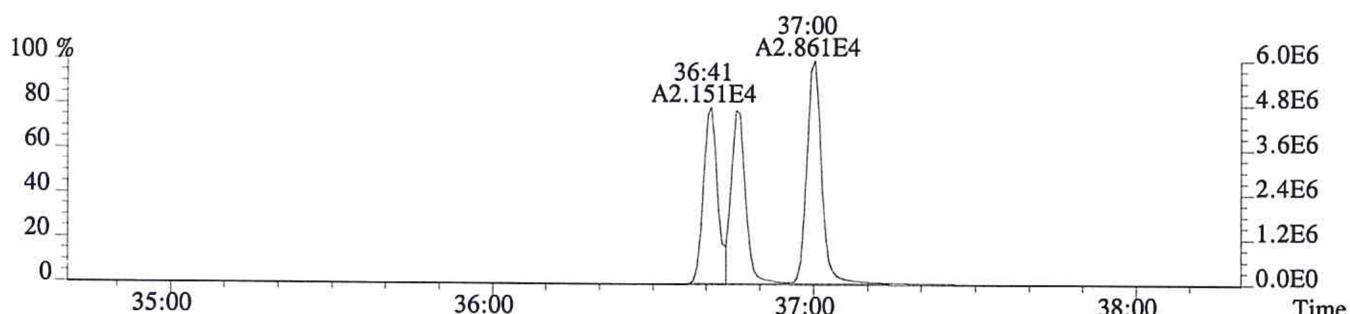
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



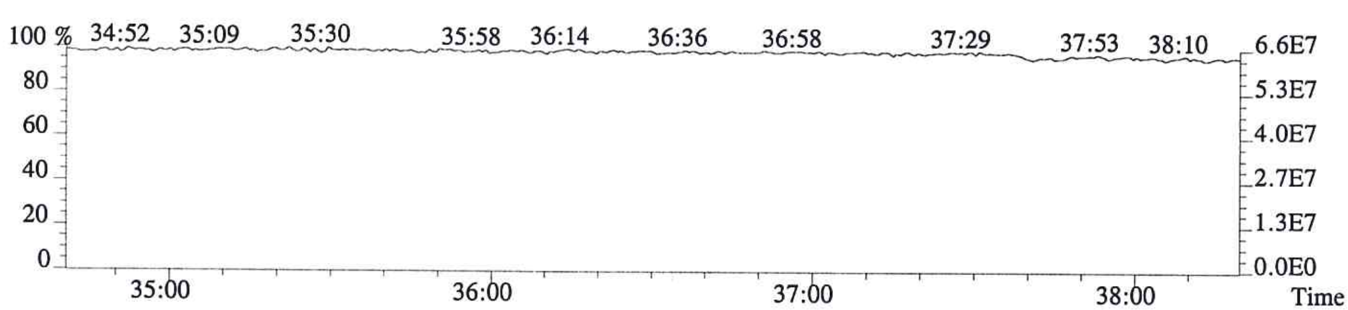
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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Sample Response Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 Sample ID: EQ1600219-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	2.475e+02	3.295e+02	0.75	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.105e+03	1.300e+03	1.62	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.781e+02	2.430e+02	0.73	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	2.865e+03	3.441e+03	0.83	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	4.842e+03	3.037e+03	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.611e+03	2.925e+03	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.533e+03	6.873e+03	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:59	2.121e+03	2.640e+03	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	2.977e+03	3.759e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.340e+03	3.498e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	NotFnd	*				no	0.945

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ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 LAB. ID: EQ1600219-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.11e+04	9.20e+02	4.5e+01	5.51e+04	1.65e+03	3.3e+01
3	2,3,4,7,8-PeCDF	3.91e+05	9.84e+02	4.0e+02	2.43e+05	1.37e+03	1.8e+02
11	2,3,7,8-TCDD	3.31e+04	1.12e+03	3.0e+01	4.21e+04	1.22e+03	3.5e+01
18	13C-2,3,7,8-TCDF	4.66e+05	4.36e+03	1.1e+02	5.65e+05	2.14e+03	2.6e+02
19	13C-1,2,3,7,8-PeCDF	8.43e+05	9.84e+02	8.6e+02	5.24e+05	1.04e+03	5.1e+02
20	13C-2,3,4,7,8-PeCDF	8.61e+05	9.84e+02	8.8e+02	5.53e+05	1.04e+03	5.3e+02
24	13C-1,2,3,7,8,9-HxCDF	6.91e+05	6.84e+02	1.0e+03	1.32e+06	1.64e+03	8.1e+02
26	13C-1,2,3,4-TCDF	*	4.36e+03	*	*	2.14e+03	*
27	13C-2,3,7,8-TCDD	3.73e+05	6.87e+03	5.4e+01	4.77e+05	3.12e+03	1.5e+02
33	13C-1,2,3,4-TCDD	5.41e+05	6.87e+03	7.9e+01	6.72e+05	3.12e+03	2.2e+02
34	13C-1,2,3,7,8,9-HxCDD	8.67e+05	1.60e+03	5.4e+02	7.17e+05	1.18e+03	6.1e+02
35	37Cl-2,3,7,8-TCDD	*	1.58e+03	*			

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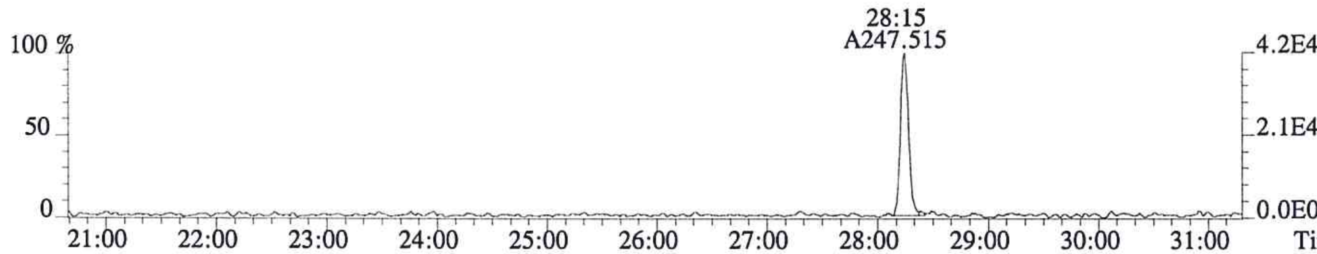
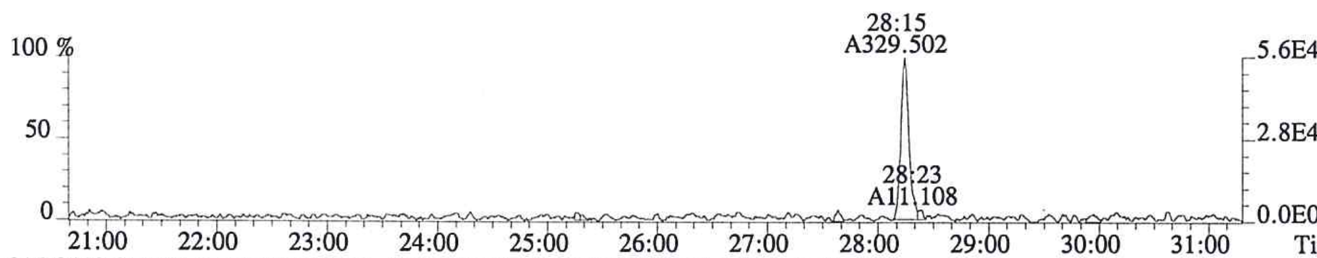
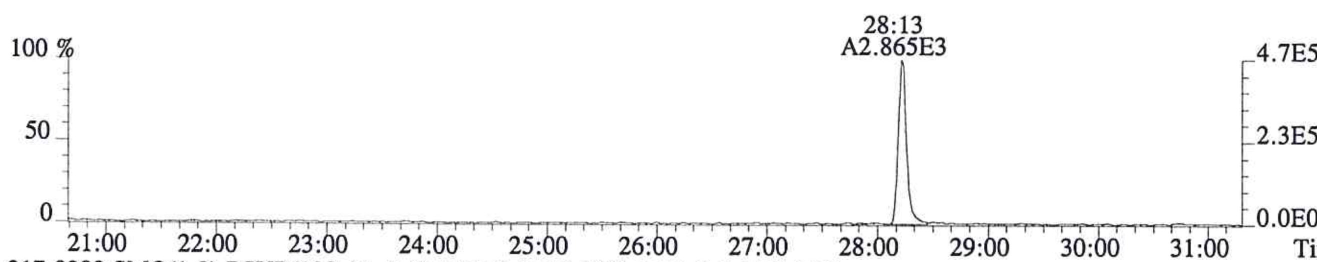
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



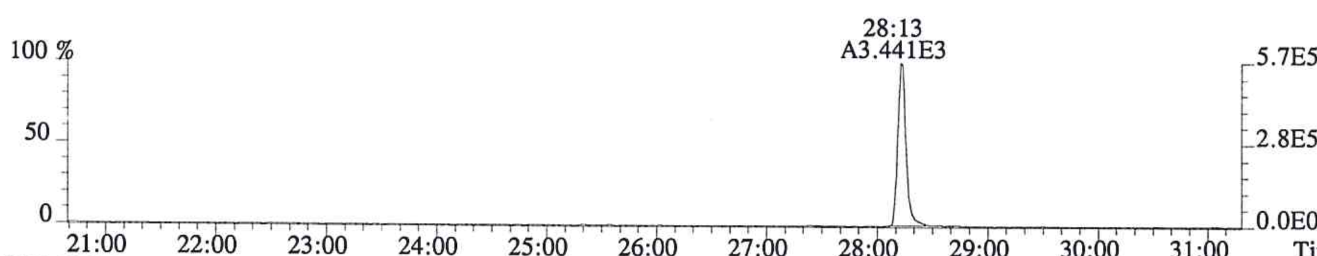
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



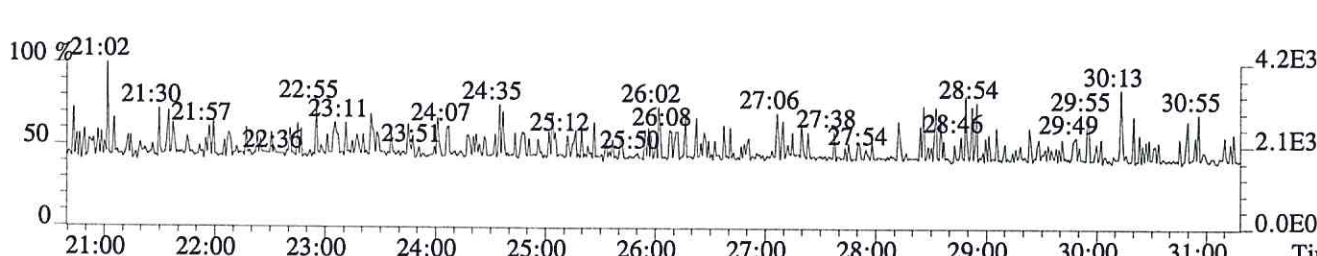
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4356.0,1.00%,F,T)



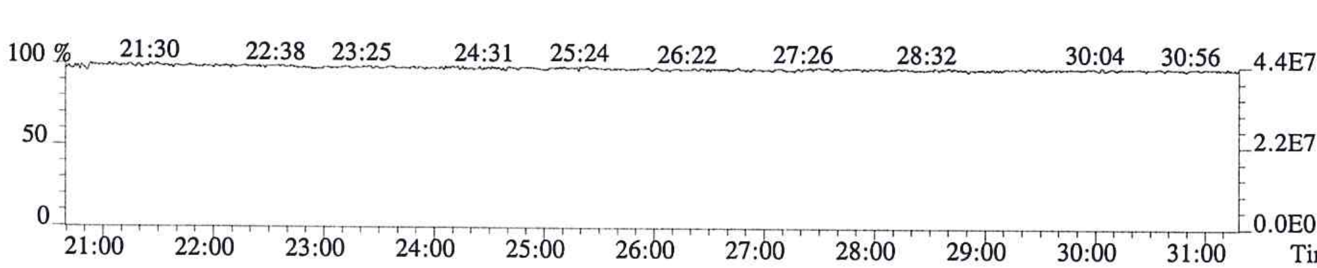
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



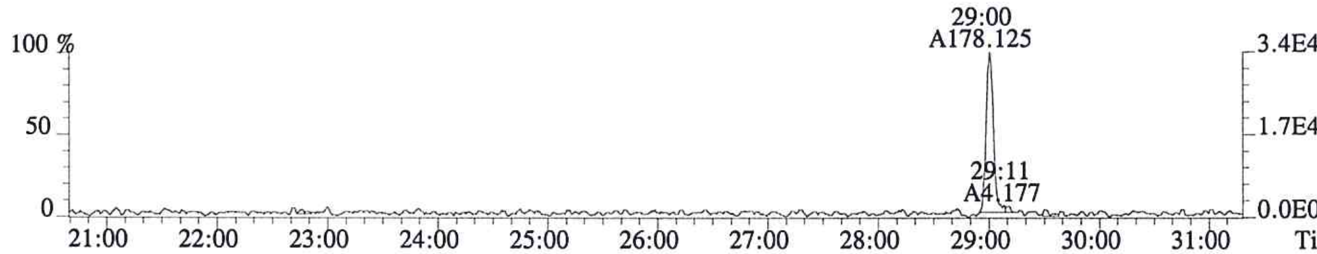
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

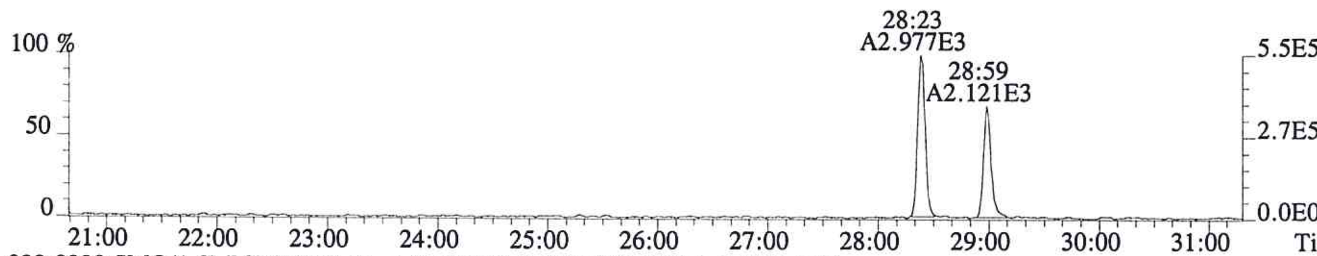


File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)

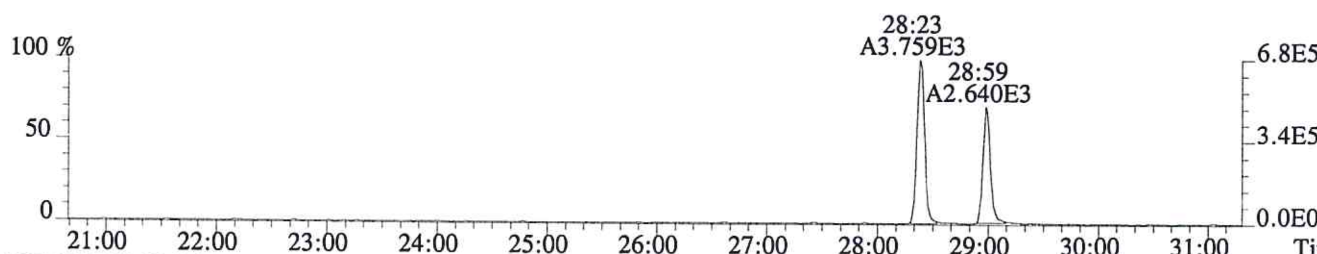


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)

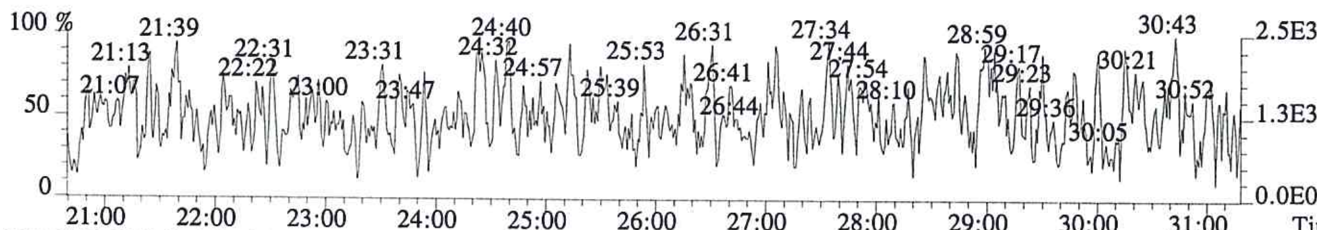
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6868.0,1.00%,F,T)



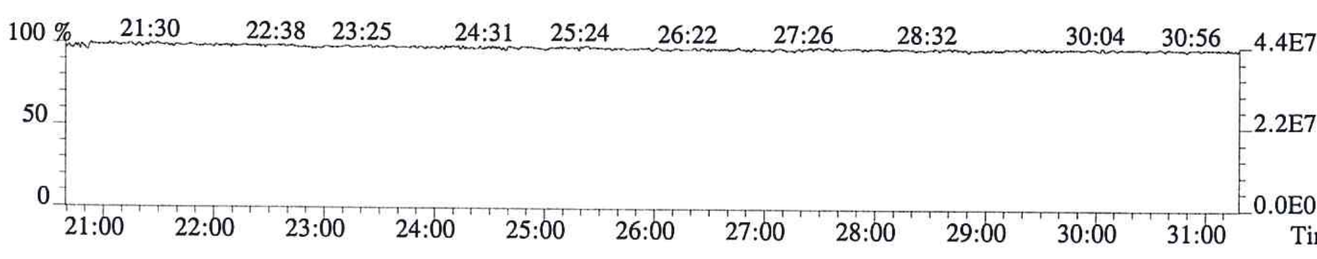
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



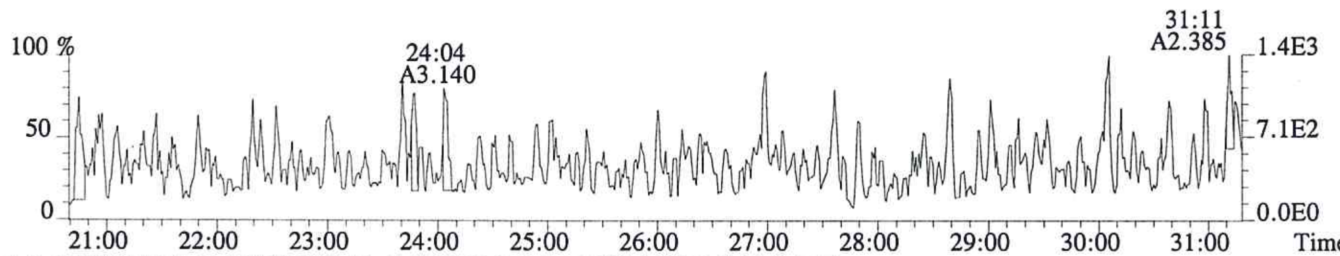
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



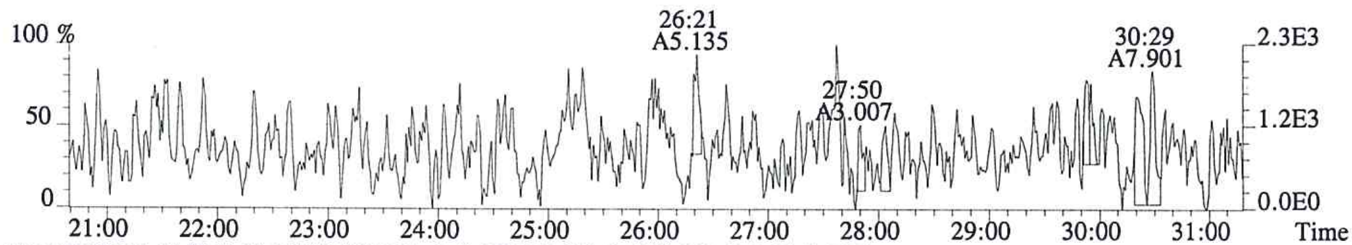
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



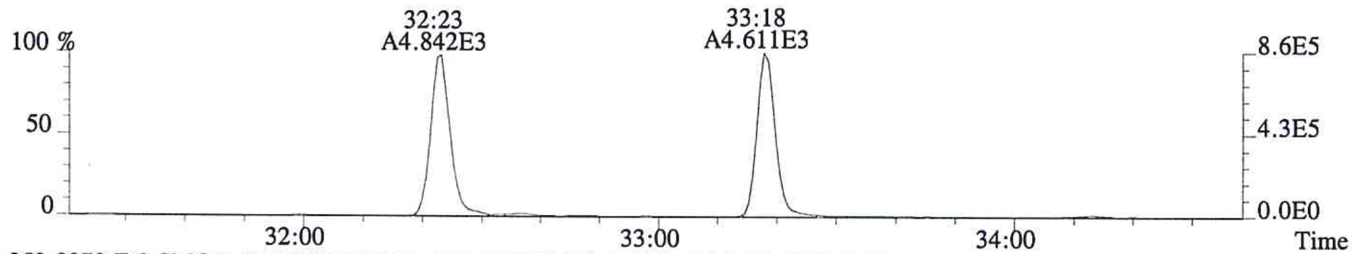
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



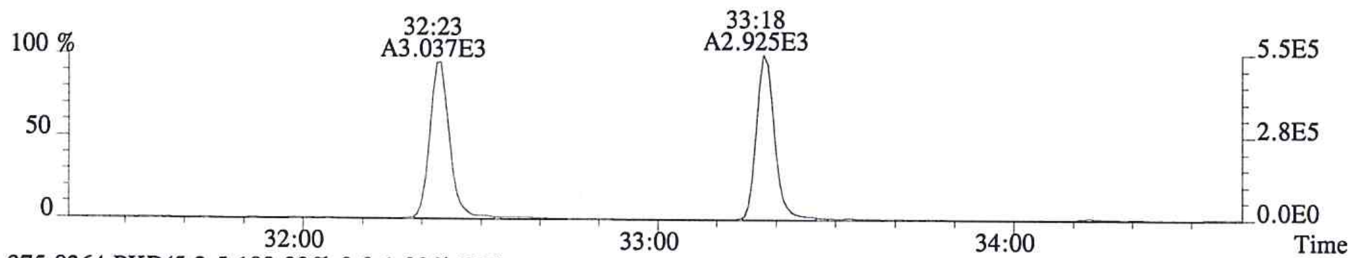
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



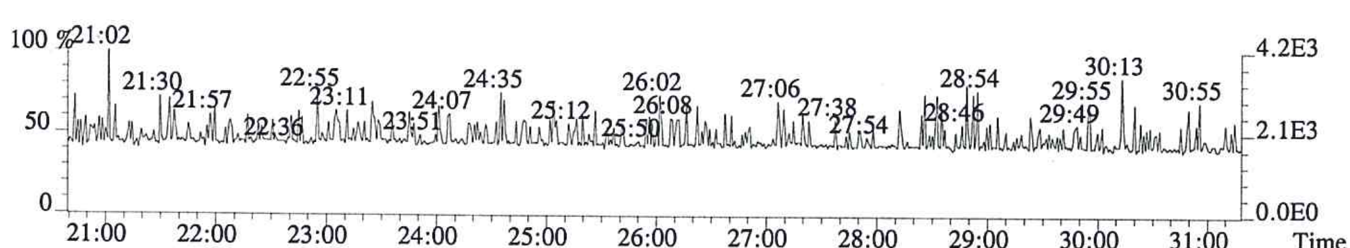
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



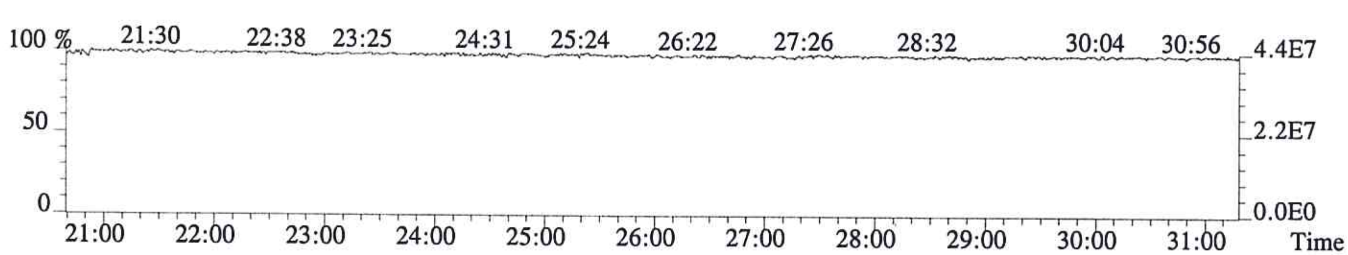
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



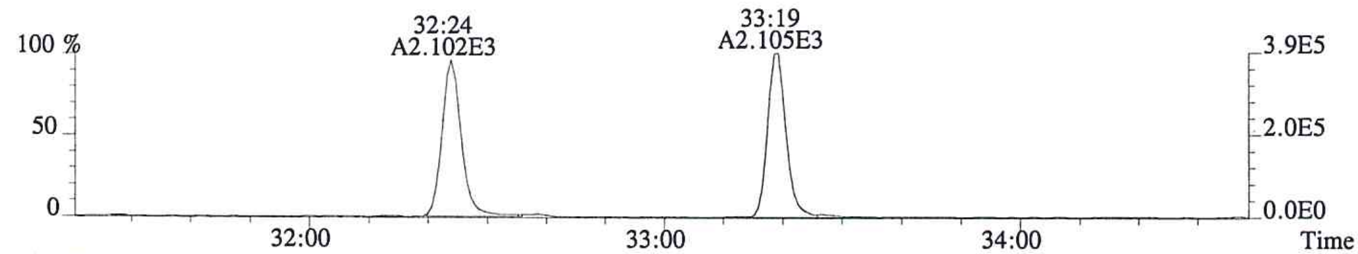
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



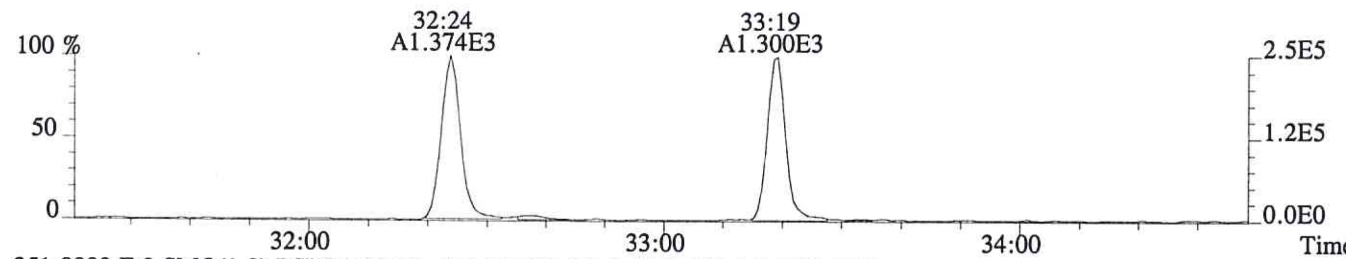
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



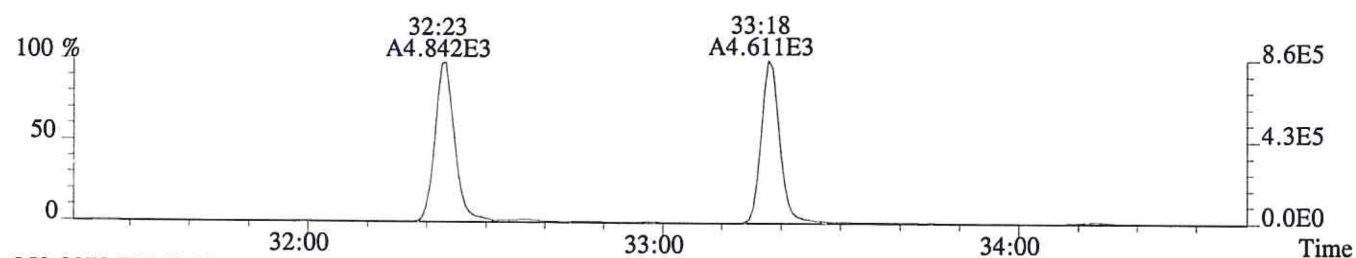
File:P604003 #1-298 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



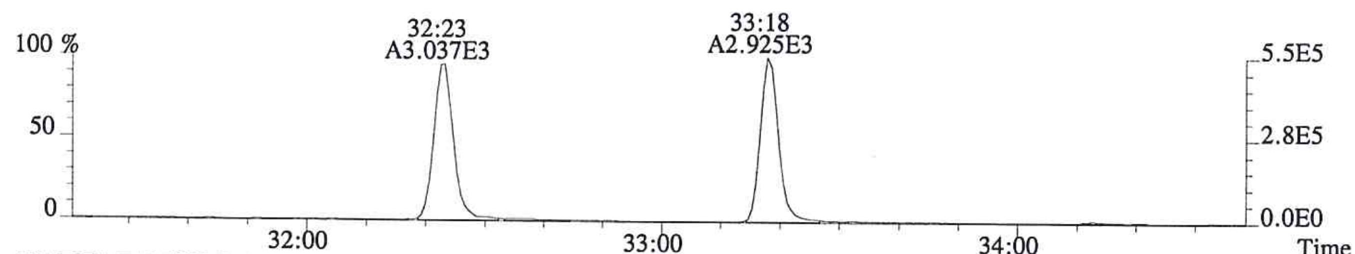
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



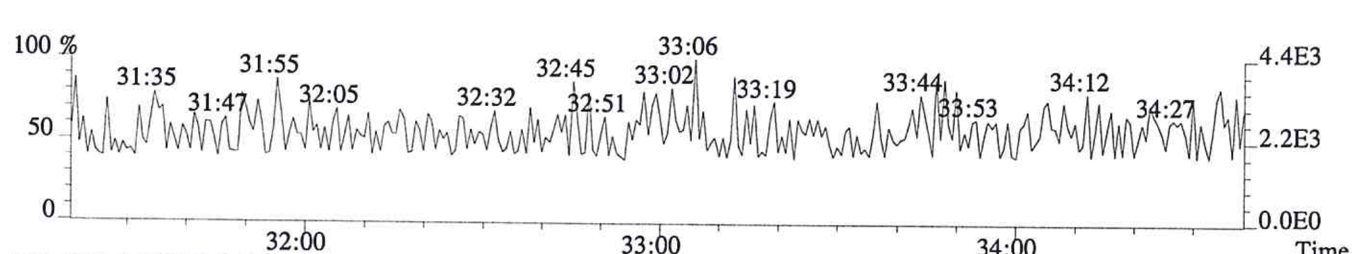
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



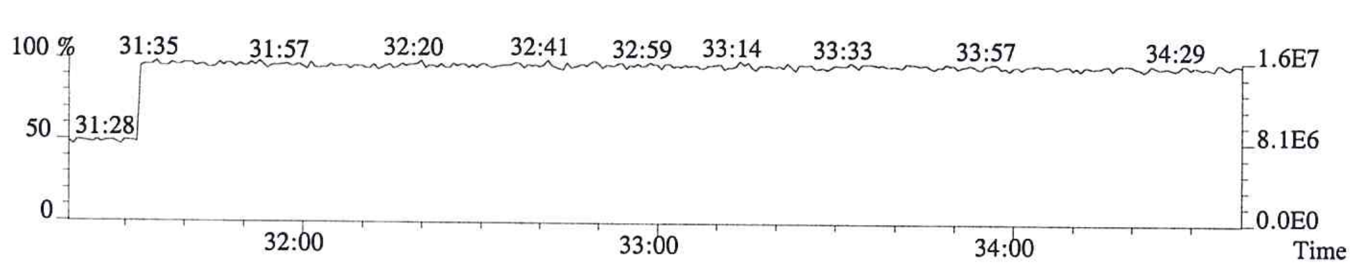
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

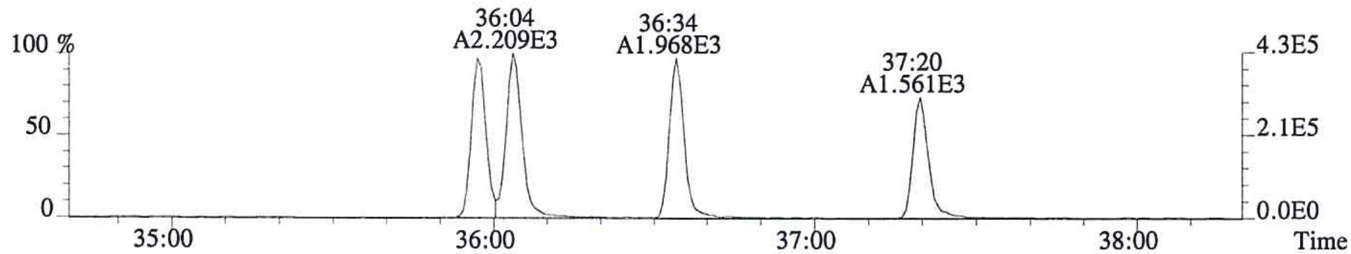


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

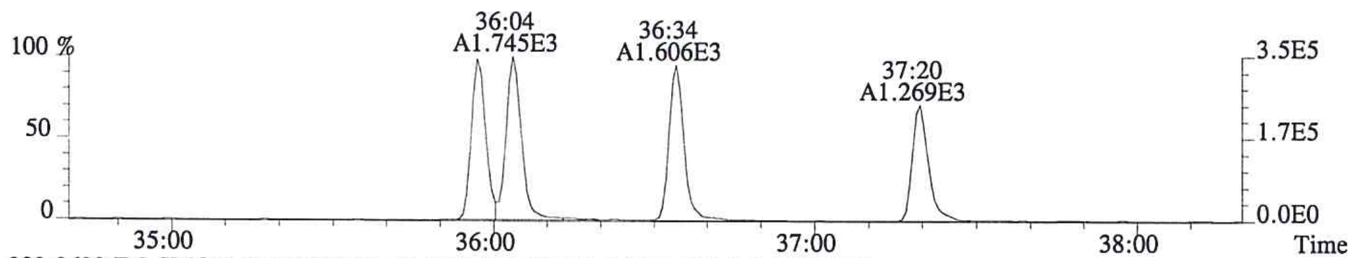


File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

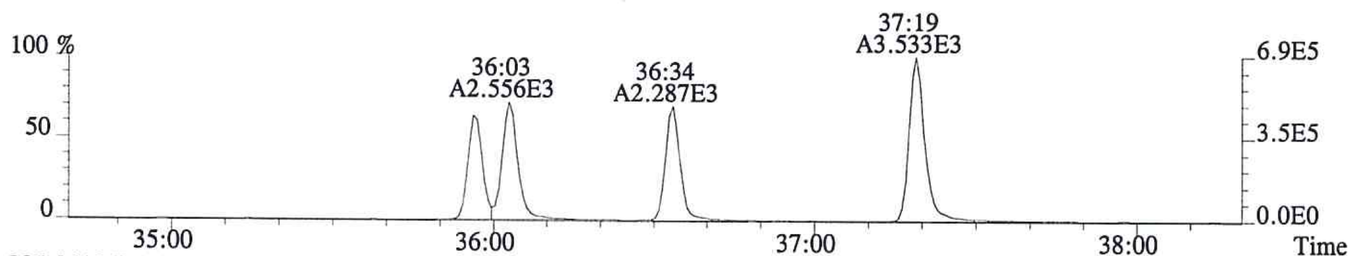
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



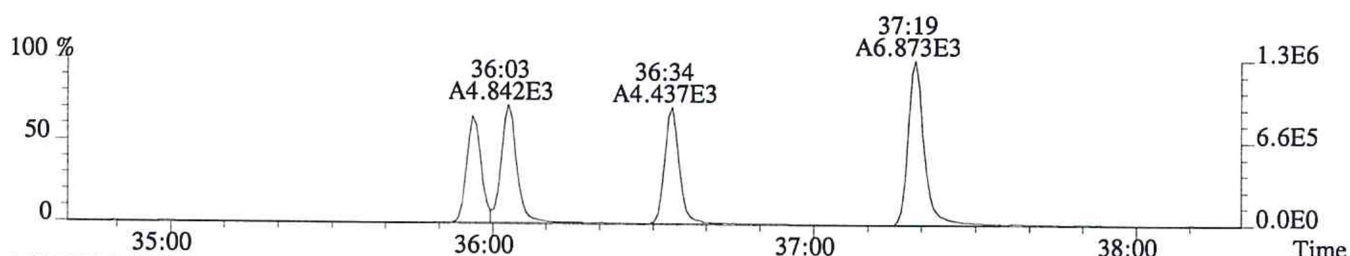
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



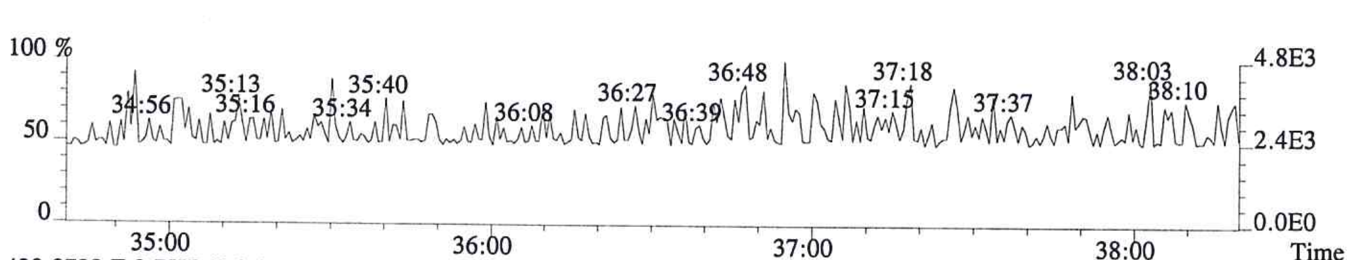
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



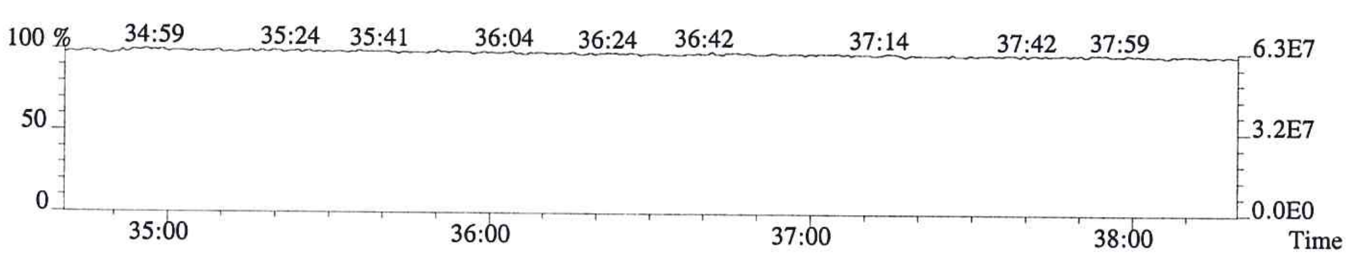
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

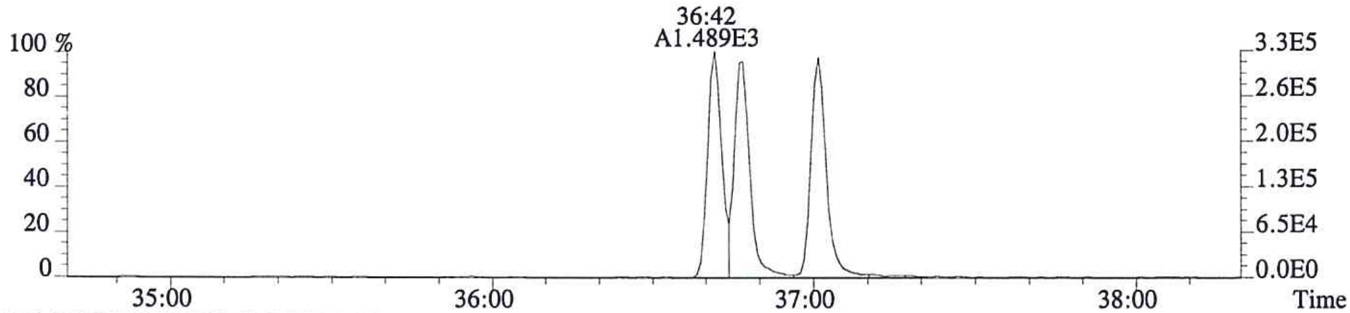


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

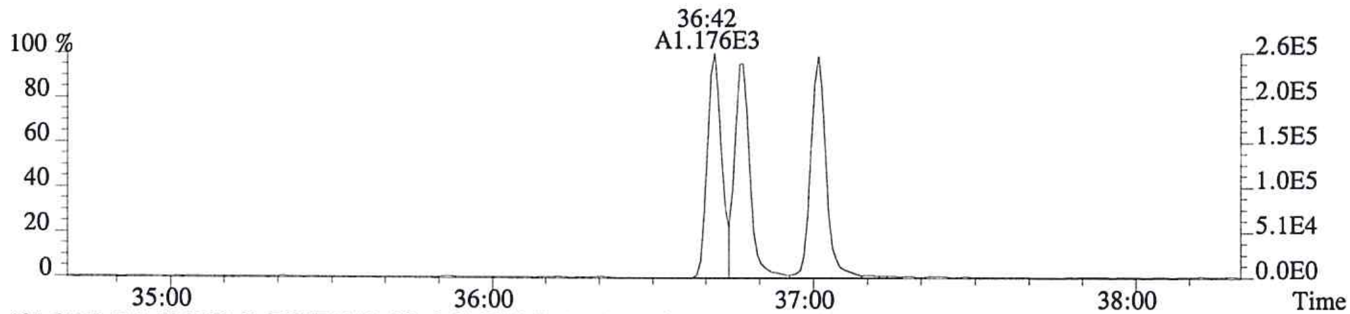


File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

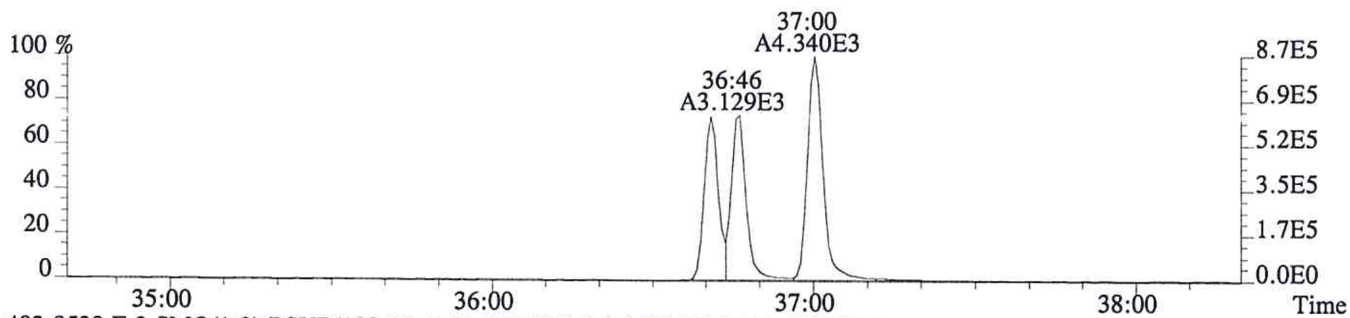
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



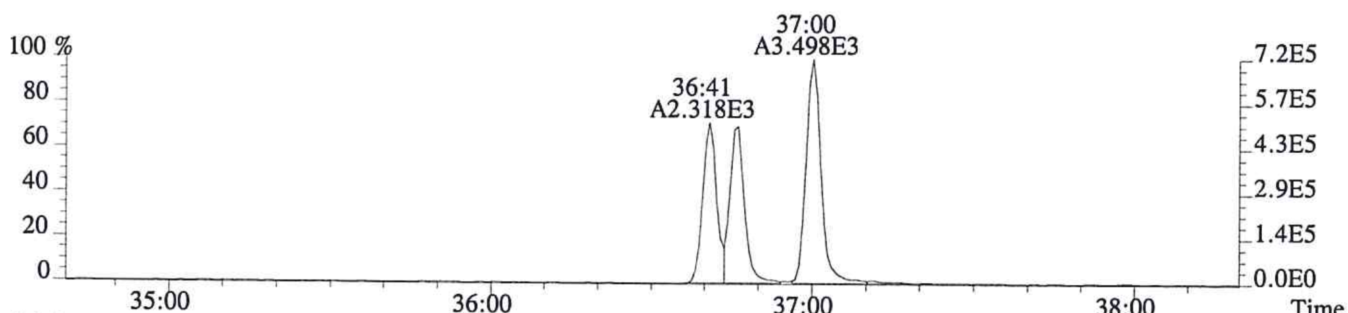
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



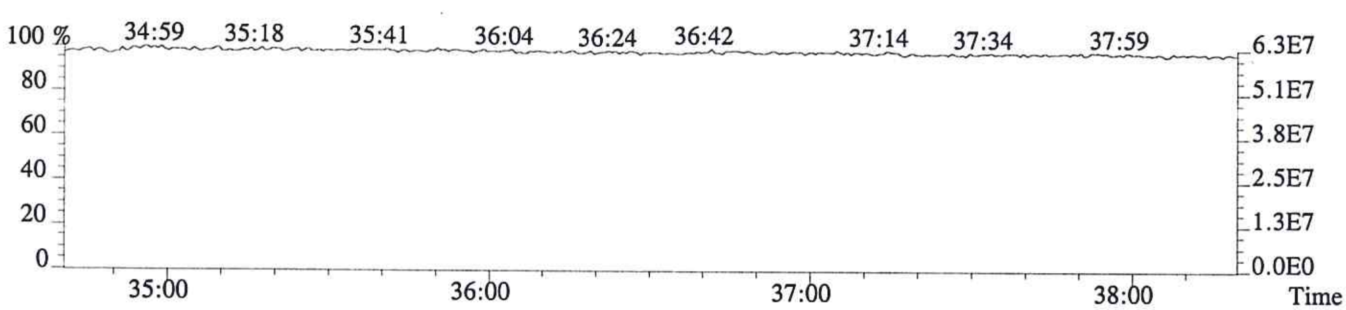
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P603991 Circle one: Beginning / Ending

Date: 06/25/16-06/26/16

SPME

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: [signature] Second QC: LKL

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
BAD INJECTION	EQ1600219-01*	P603992	25-JUN-16	18:59:09
METHOD BLANK	EQ1600219-01	P603993	25-JUN-16	19:48:09
04052016SJPW10	E1600282-006	P603994	25-JUN-16	20:37:12
03162016SJGW1	E1600326-001	P603995	25-JUN-16	21:26:14
04072016SJGW1	E1600326-002	P603996	25-JUN-16	22:15:14
04072016SJGW2	E1600326-003	P603997	25-JUN-16	23:04:16
04072016SJGW10	E1600326-004	P603998	25-JUN-16	23:53:17
04072016SJGW11	E1600326-005	P603999	26-JUN-16	00:42:18
04072016SJGW12	E1600326-006	P604000	26-JUN-16	01:31:21
04072016SJGW13	E1600326-007	P604001	26-JUN-16	02:20:22

USEPA - CLP

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
LCS	EQ1600219-02	P604002	26-JUN-16	03:09:23
DLCS	EQ1600219-03	P604003	26-JUN-16	03:58:24

FORM V-HR CDD-3 DLM02.0(5/05)

E1600282

74 of 174

opus4: P603991res ; P603991res2

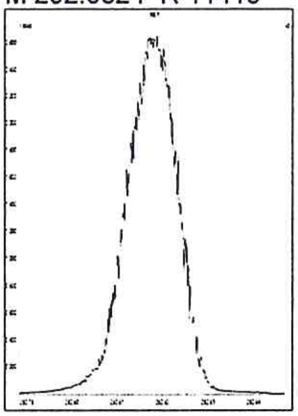
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	17:21	P603990	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 16:28
2		18:10	P603991	173638	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		18:59	P603992	EQ1600219-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		Bad injection
4		19:48	P603993	EQ1600219-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		20:37	P603994	E1600282-006	E1600282-006	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		21:26	P603995	E1600326-001	E1600326-001	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		22:15	P603996	E1600326-002	E1600326-002	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		23:04	P603997	E1600326-003	E1600326-003	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		23:53	P603998	E1600326-004	E1600326-004	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10	06/26/16	00:42	P603999	E1600326-005	E1600326-005	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		01:31	P604000	E1600326-006	E1600326-006	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		02:20	P604001	E1600326-007	E1600326-007	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		03:09	P604002	EQ1600219-02	LCS	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		03:58	P604003	EQ1600219-03	DLCS	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15		04:55	P604004	173638	CS3	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS check 08:21
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

JC 07/01/16

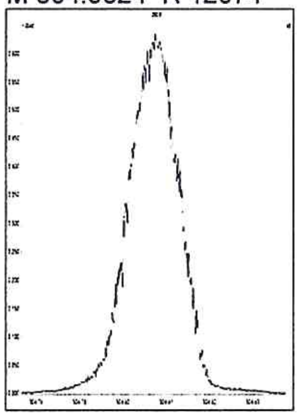
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

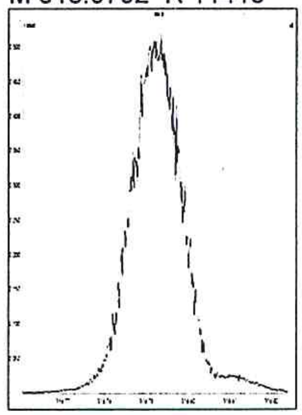
M 292.9824 R 11415



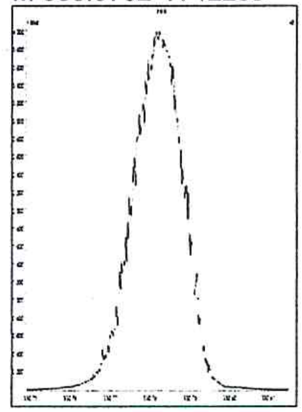
M 304.9824 R 12074



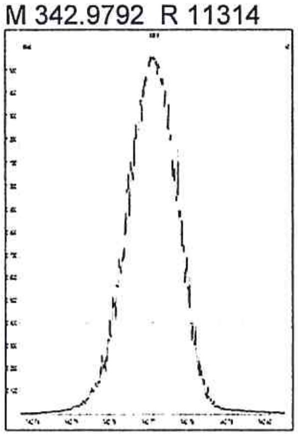
M 318.9792 R 11416



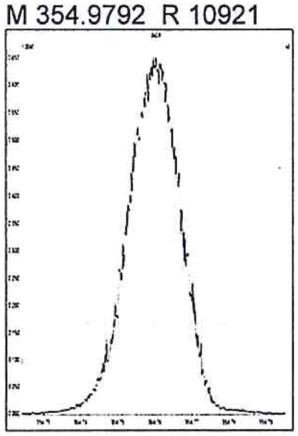
M 330.9792 R 12259



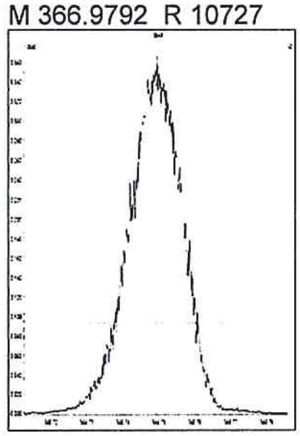
M 342.9792 R 11314



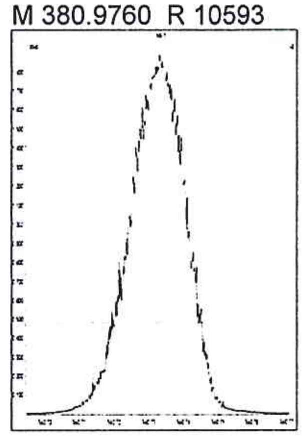
M 354.9792 R 10921



M 366.9792 R 10727



M 380.9760 R 10593

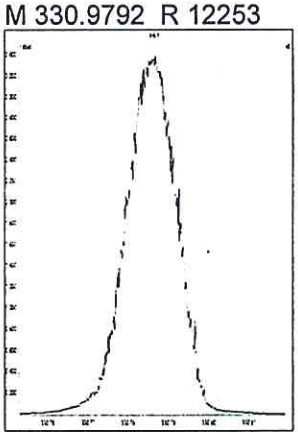


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

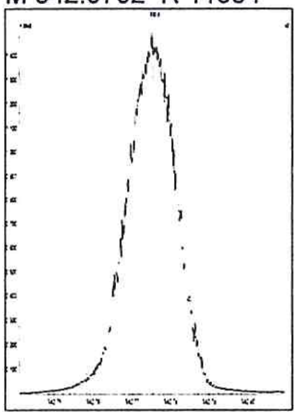
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

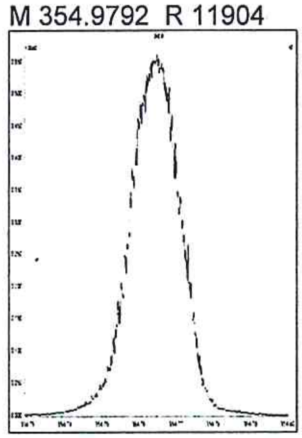
M 330.9792 R 12253



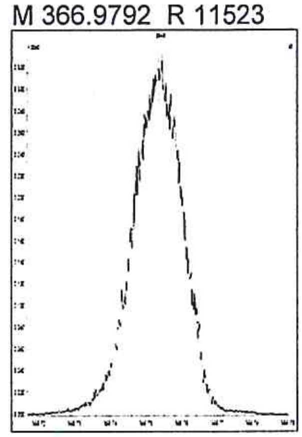
M 342.9792 R 11684



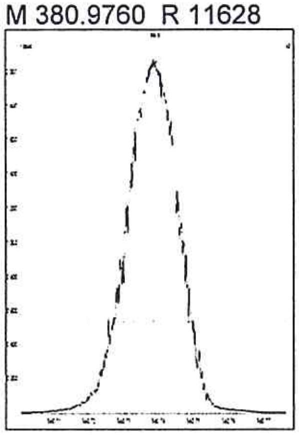
M 354.9792 R 11904



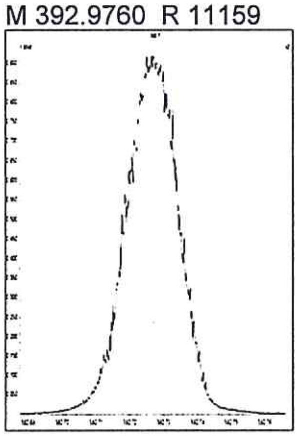
M 366.9792 R 11523



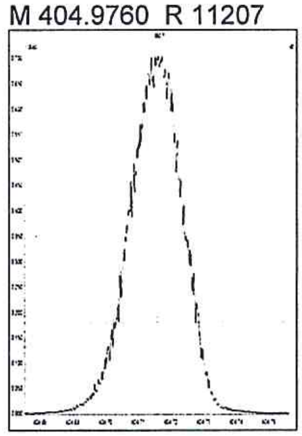
M 380.9760 R 11628



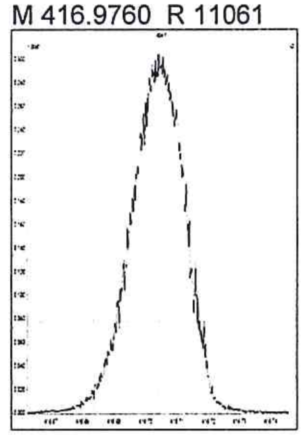
M 392.9760 R 11159



M 404.9760 R 11207



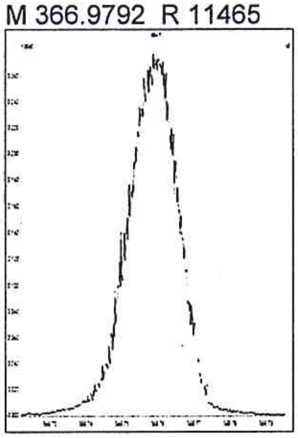
M 416.9760 R 11061



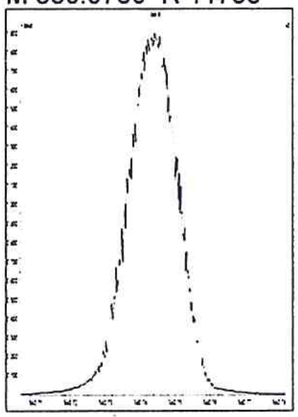
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

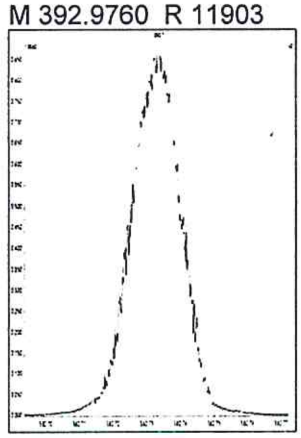
M 366.9792 R 11465



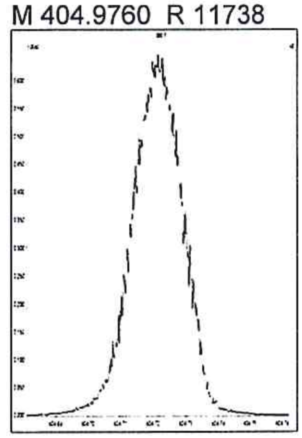
M 380.9760 R 11738



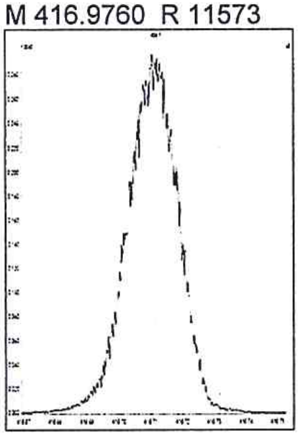
M 392.9760 R 11903



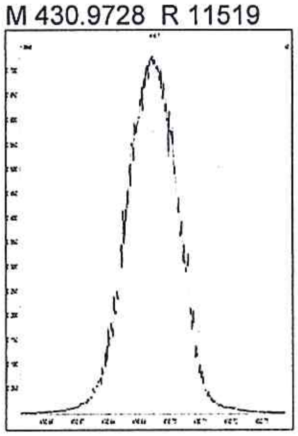
M 404.9760 R 11738



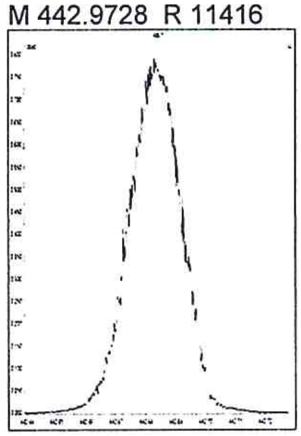
M 416.9760 R 11573



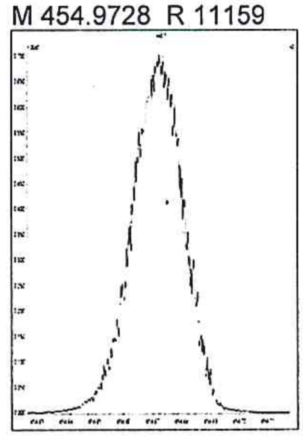
M 430.9728 R 11519



M 442.9728 R 11416



M 454.9728 R 11159

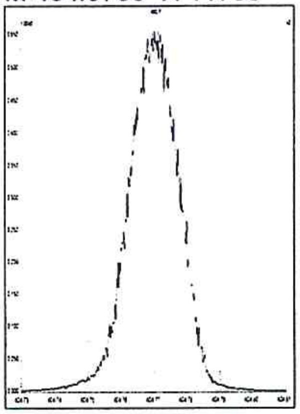


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

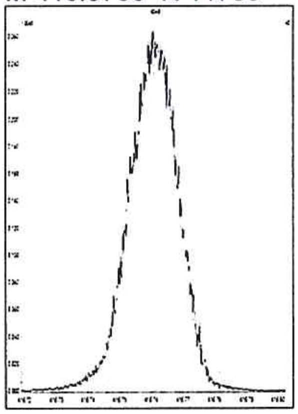
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

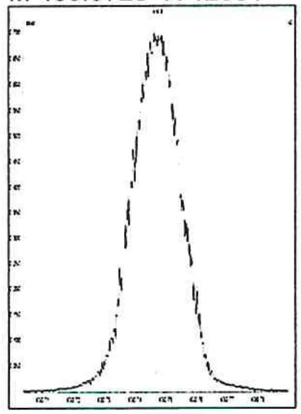
M 404.9760 R 11735



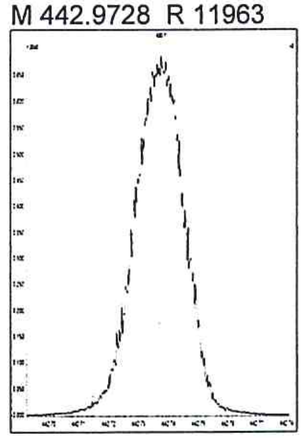
M 416.9760 R 11789



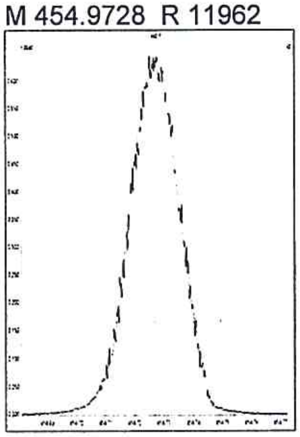
M 430.9728 R 12081



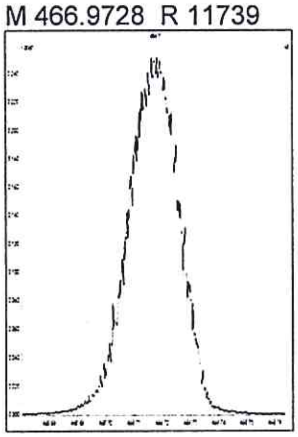
M 442.9728 R 11963



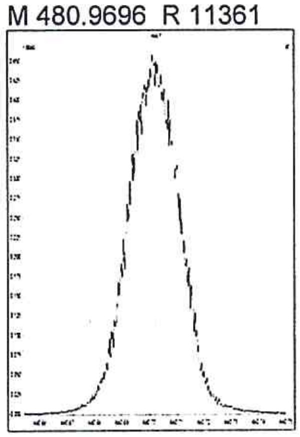
M 454.9728 R 11962



M 466.9728 R 11739



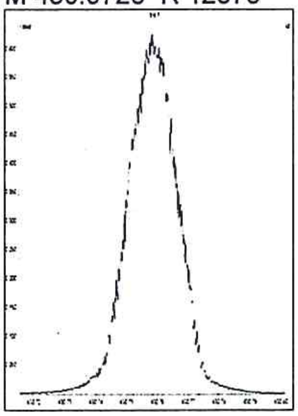
M 480.9696 R 11361



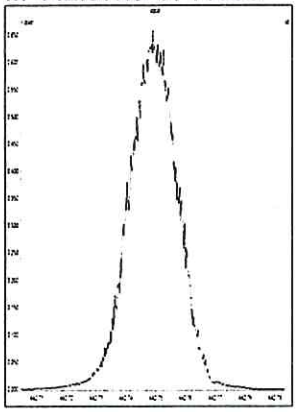
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time

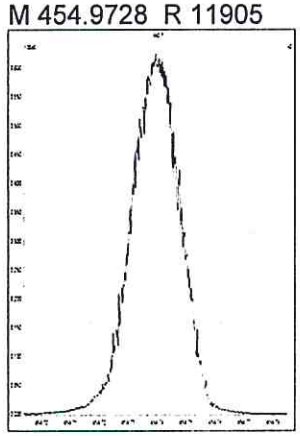
M 430.9728 R 12376



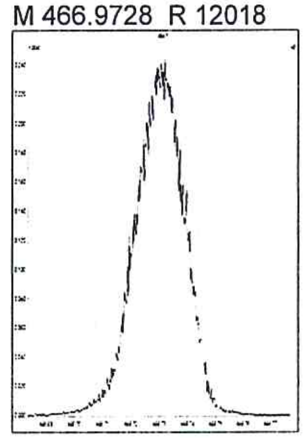
M 442.9728 R 11960



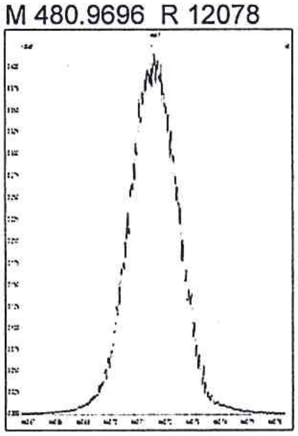
M 454.9728 R 11905



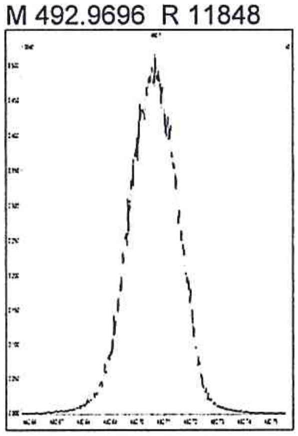
M 466.9728 R 12018



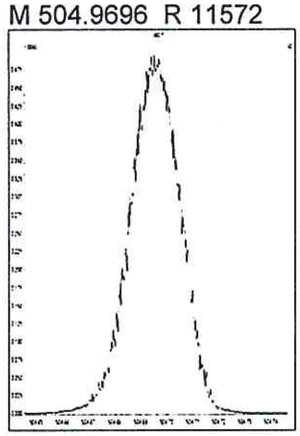
M 480.9696 R 12078



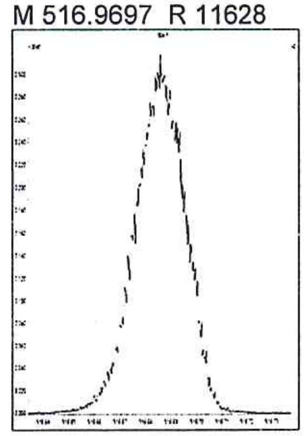
M 492.9696 R 11848



M 504.9696 R 11572



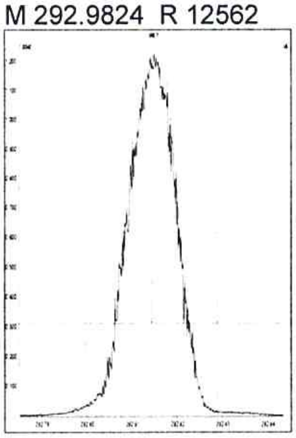
M 516.9697 R 11628



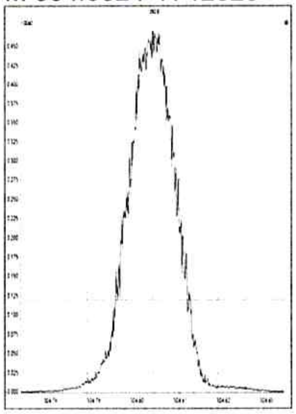
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:21:50 Eastern Daylight Time

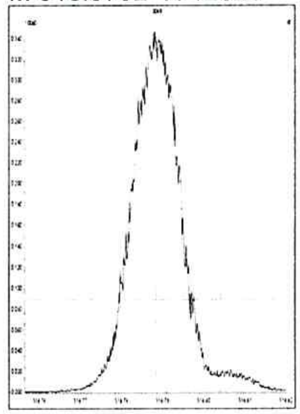
M 292.9824 R 12562



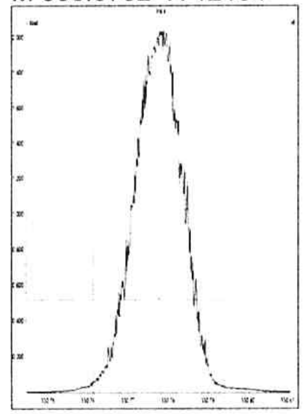
M 304.9824 R 12629



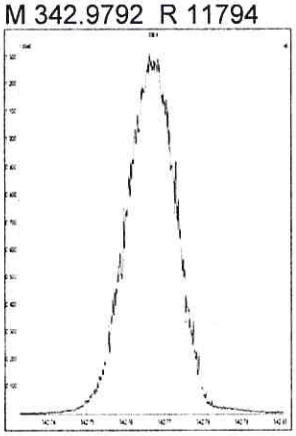
M 318.9792 R 12020



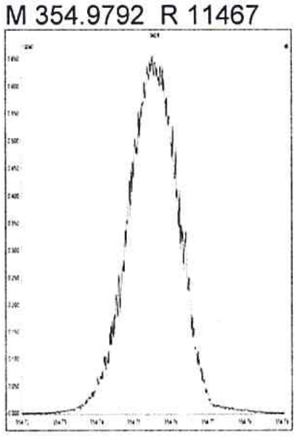
M 330.9792 R 12134



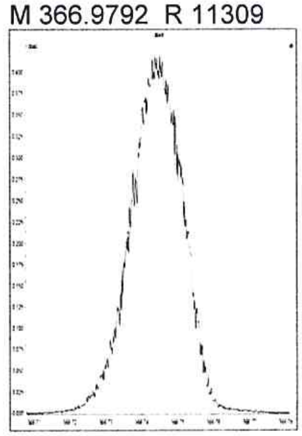
M 342.9792 R 11794



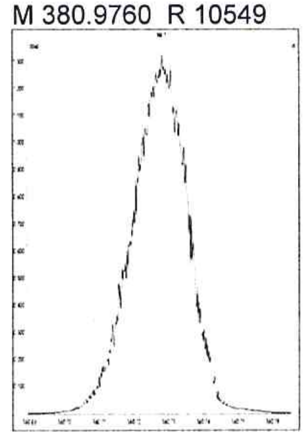
M 354.9792 R 11467



M 366.9792 R 11309



M 380.9760 R 10549

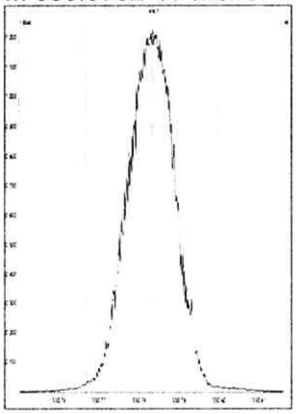


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

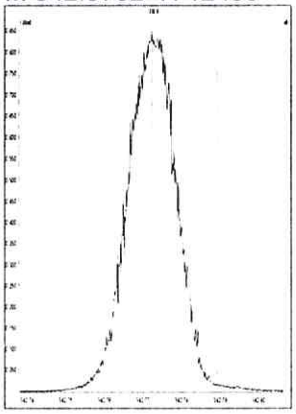
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:23:16 Eastern Daylight Time

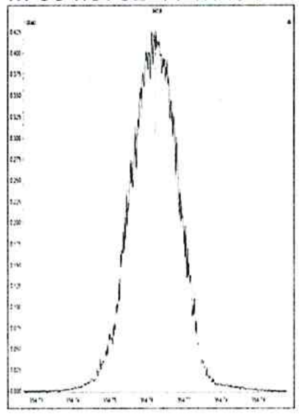
M 330.9792 R 12625



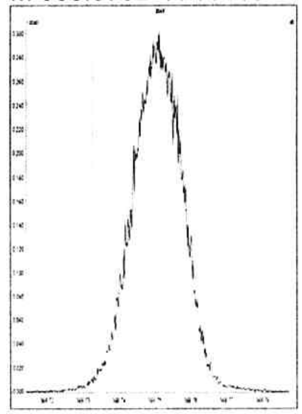
M 342.9792 R 12439



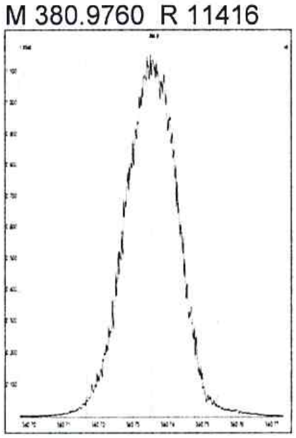
M 354.9792 R 12254



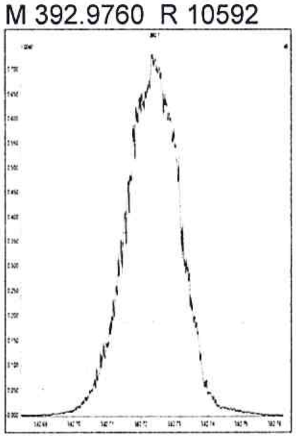
M 366.9792 R 11418



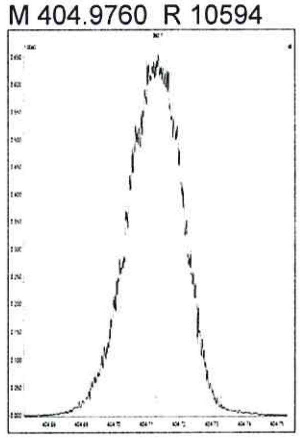
M 380.9760 R 11416



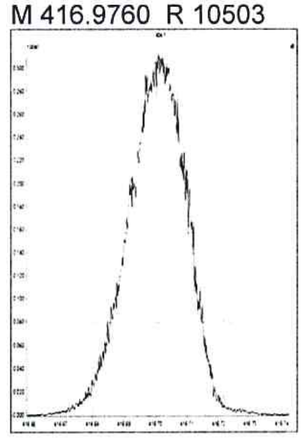
M 392.9760 R 10592



M 404.9760 R 10594



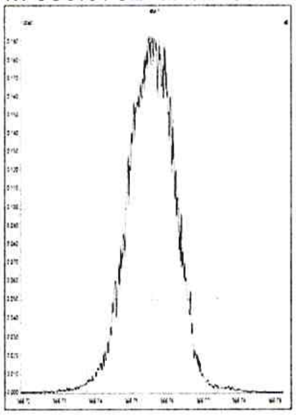
M 416.9760 R 10503



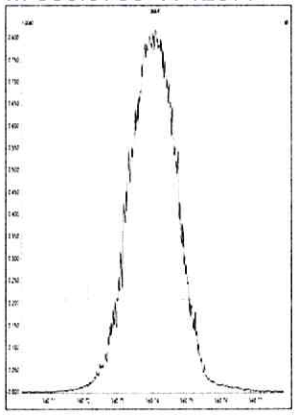
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:24:38 Eastern Daylight Time

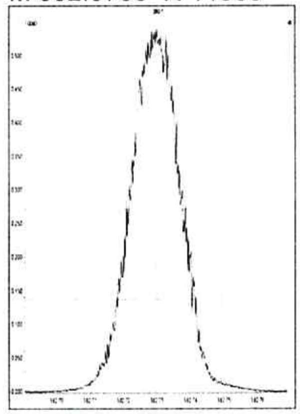
M 366.9792 R 12497



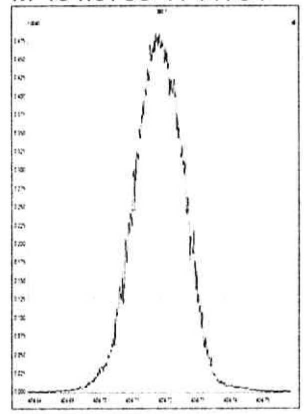
M 380.9760 R 12377



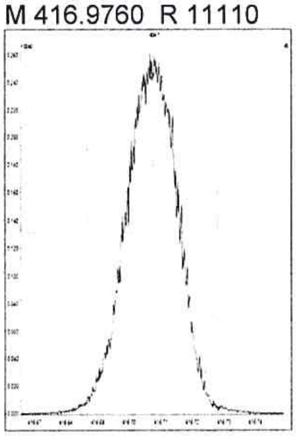
M 392.9760 R 11960



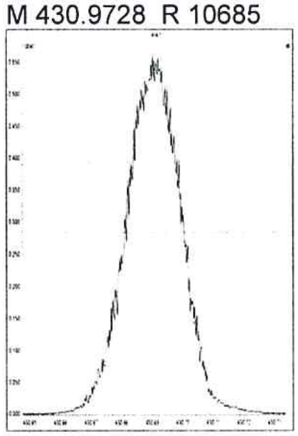
M 404.9760 R 11794



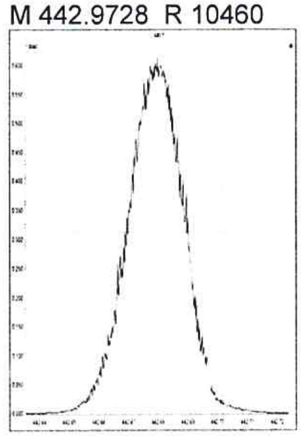
M 416.9760 R 11110



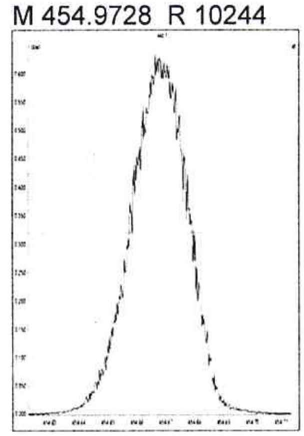
M 430.9728 R 10685



M 442.9728 R 10460



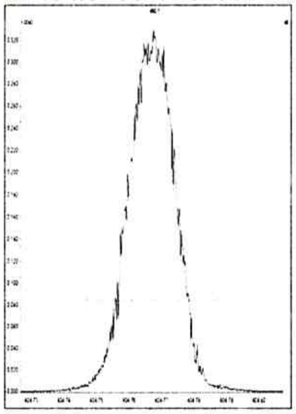
M 454.9728 R 10244



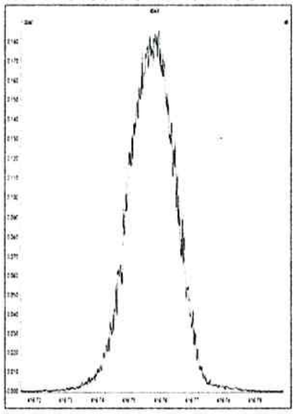
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:25:52 Eastern Daylight Time

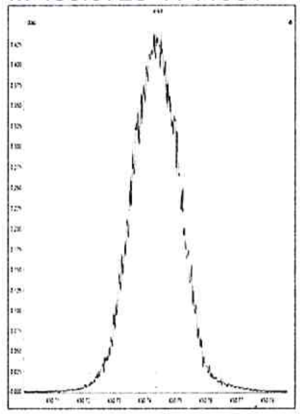
M 404.9760 R 12693



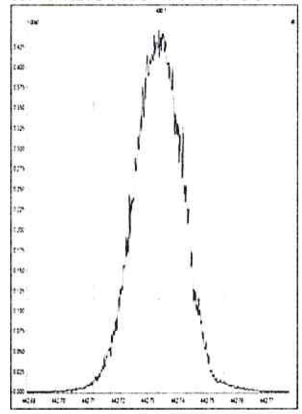
M 416.9760 R 12438



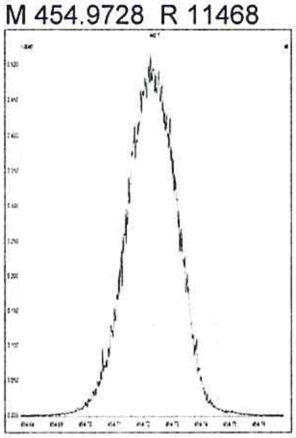
M 430.9728 R 11961



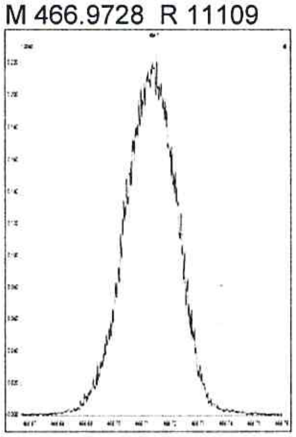
M 442.9728 R 11739



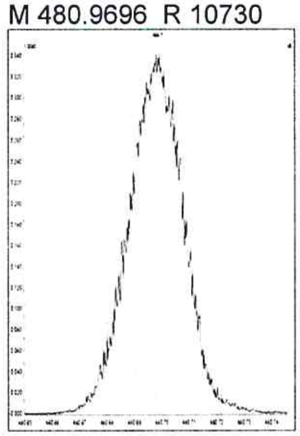
M 454.9728 R 11468



M 466.9728 R 11109



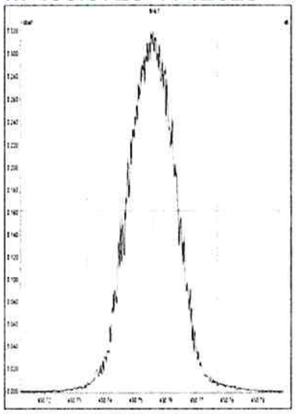
M 480.9696 R 10730



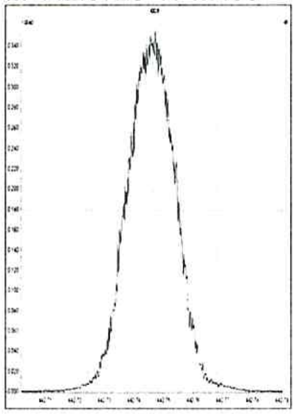
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:27:02 Eastern Daylight Time

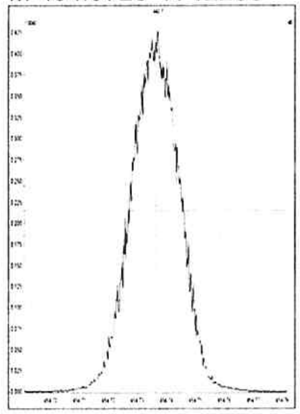
M 430.9728 R 12820



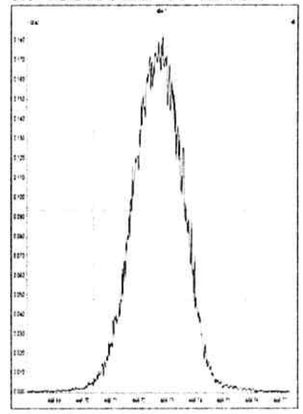
M 442.9728 R 12498



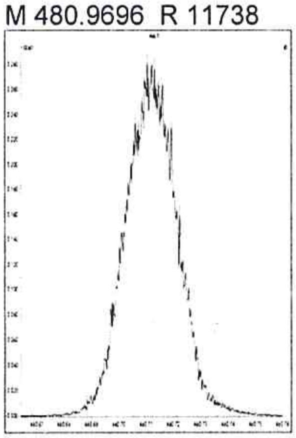
M 454.9728 R 12255



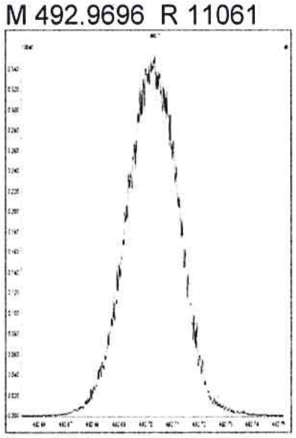
M 466.9728 R 12194



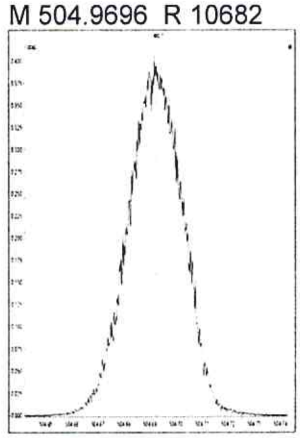
M 480.9696 R 11738



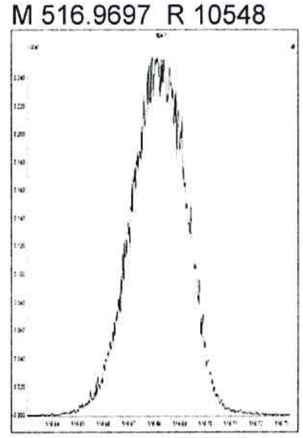
M 492.9696 R 11061



M 504.9696 R 10682



M 516.9697 R 10548



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

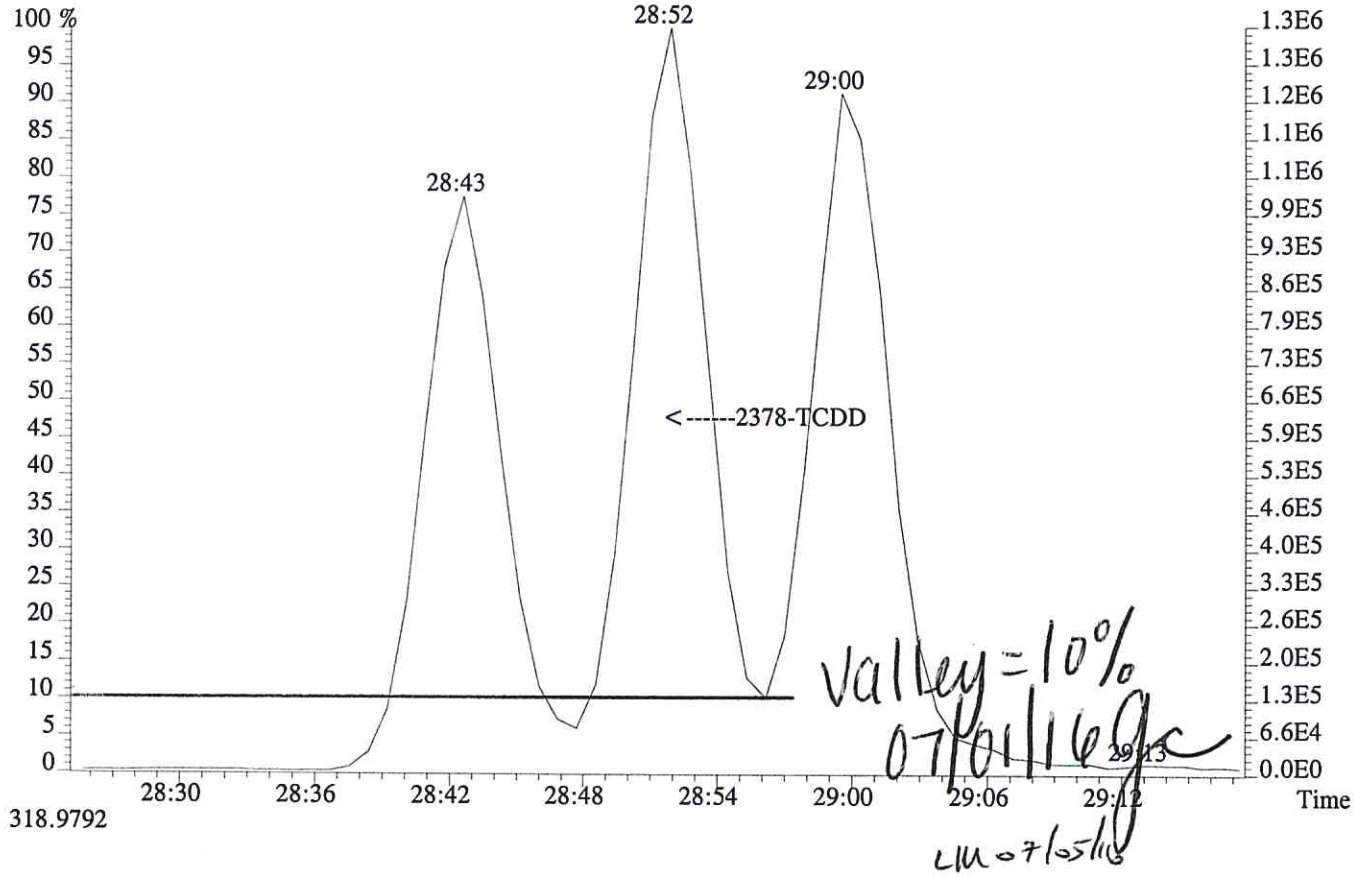
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: ______ SDG No.:
ID: 0.25 (mm) Lab File ID: P603990
Date Analyzed: 25-JUN-2016
Time Analyzed: 17:21:07

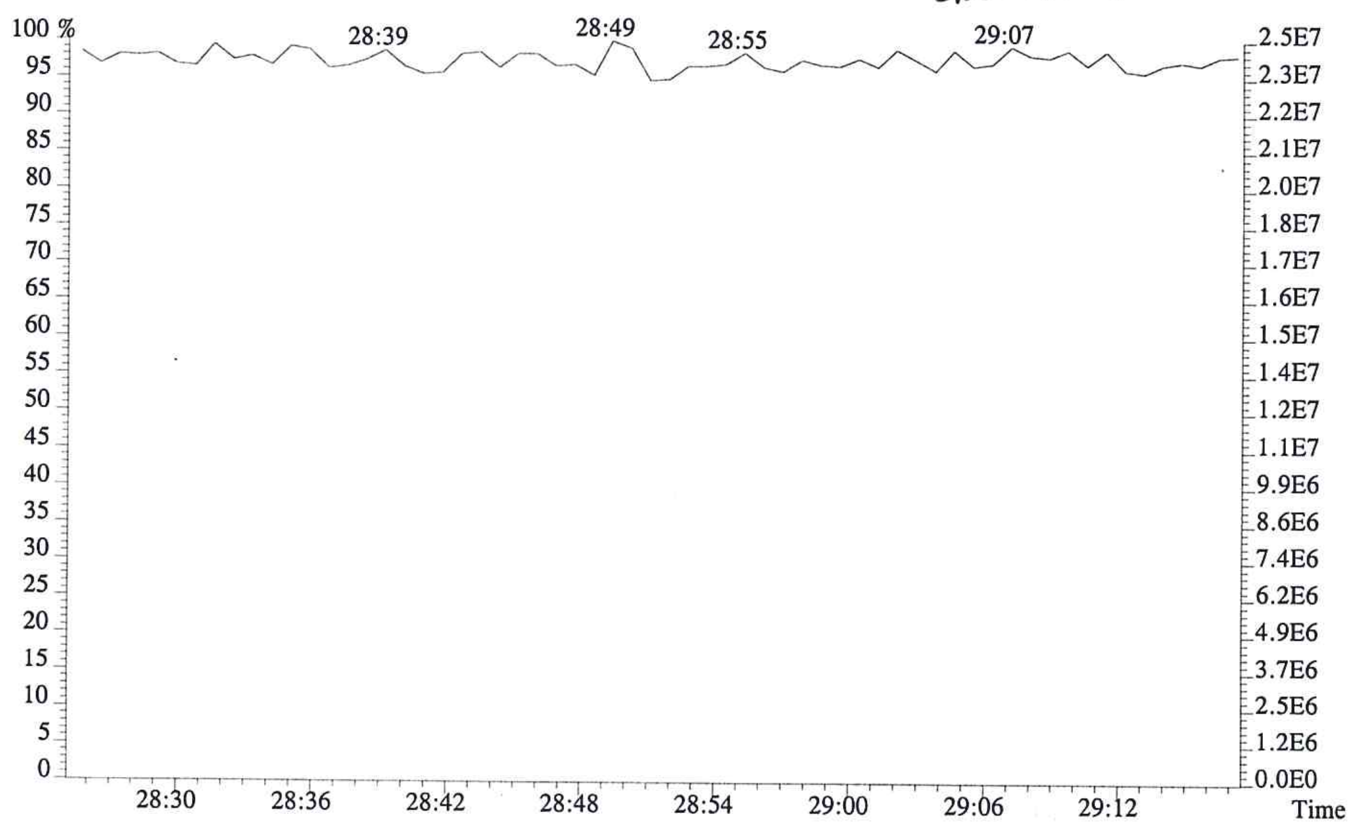
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:40	30:04
TCDD	25:32	29:52
PeCDF	29:56	34:13
PeCDD	31:29	33:57
HxCDF	34:50	37:22
HxCDD	35:21	36:56

% Valley 2378-TCDD: 10 %

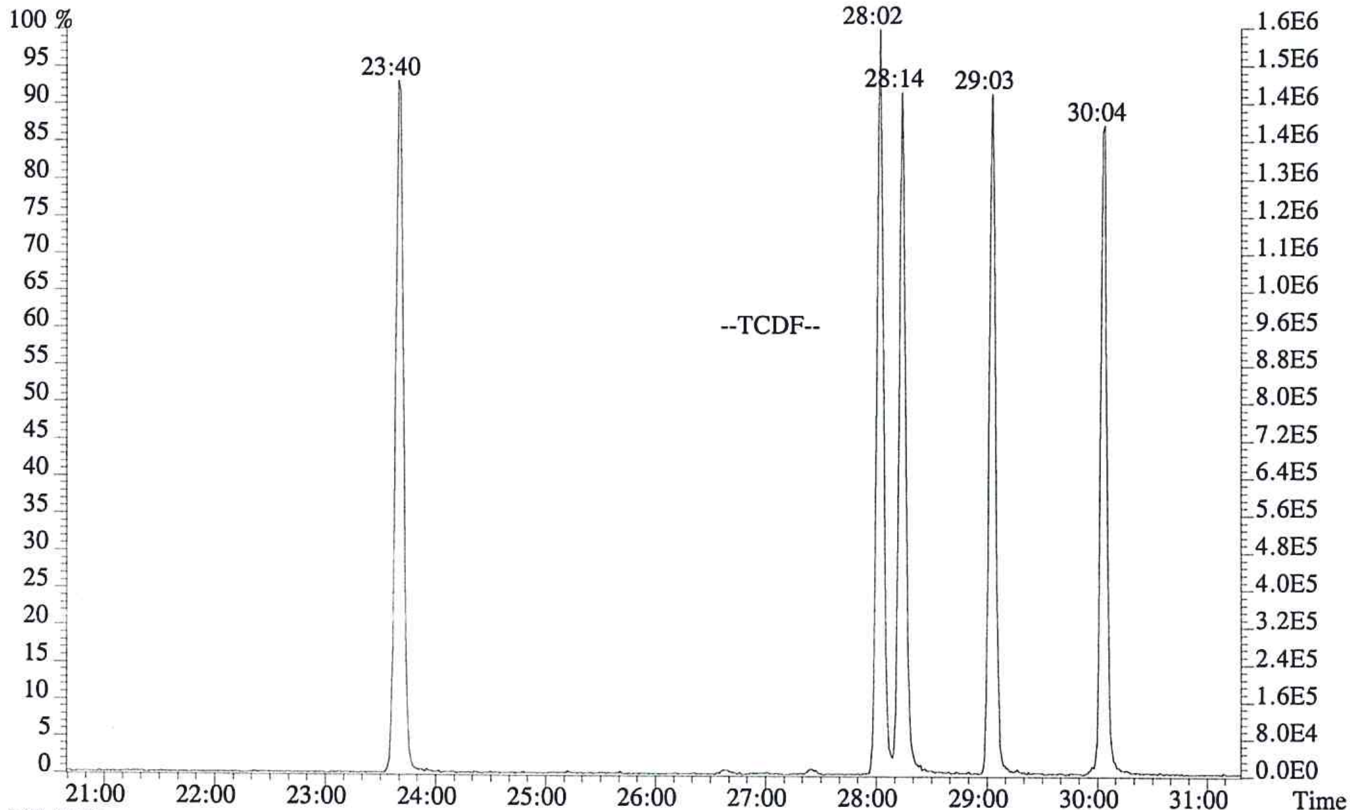
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



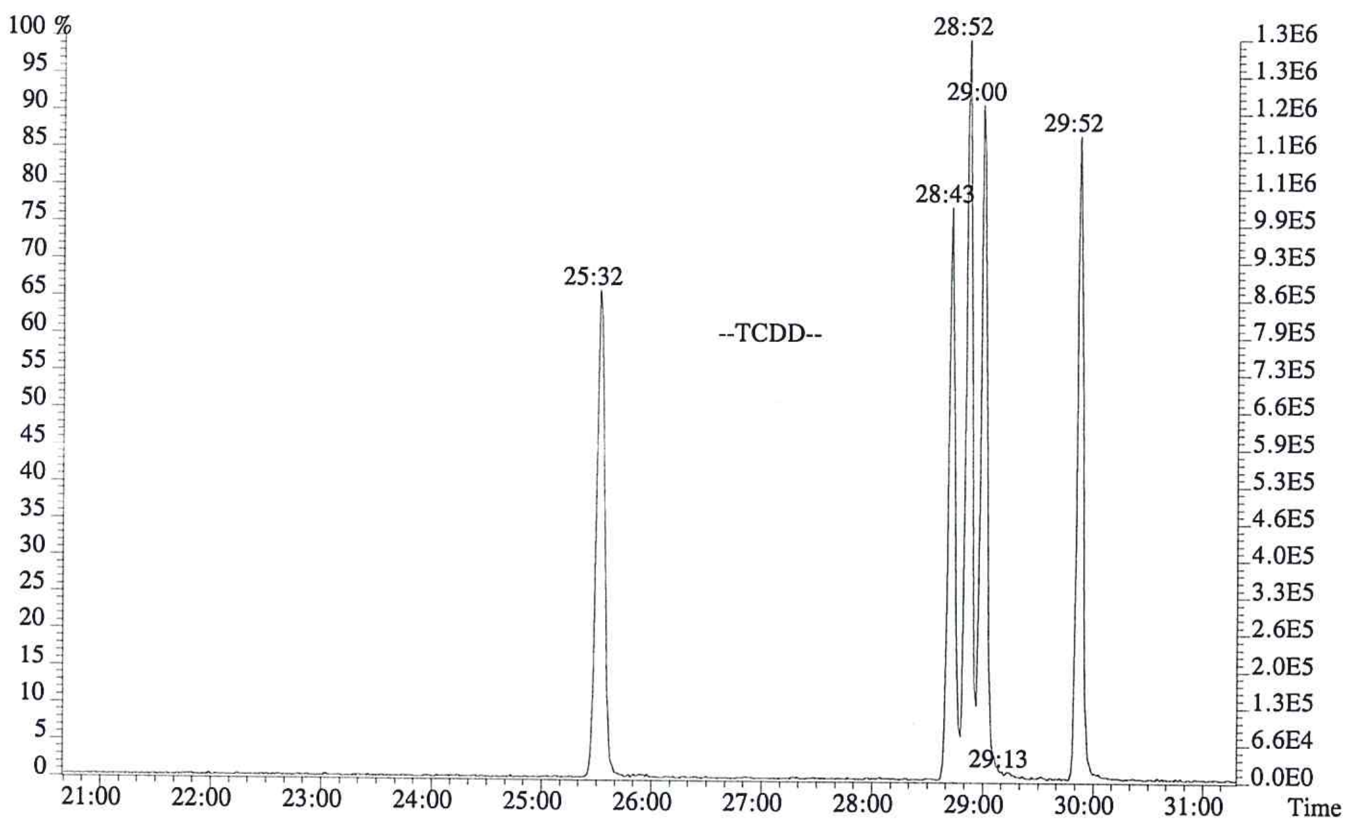
318.9792



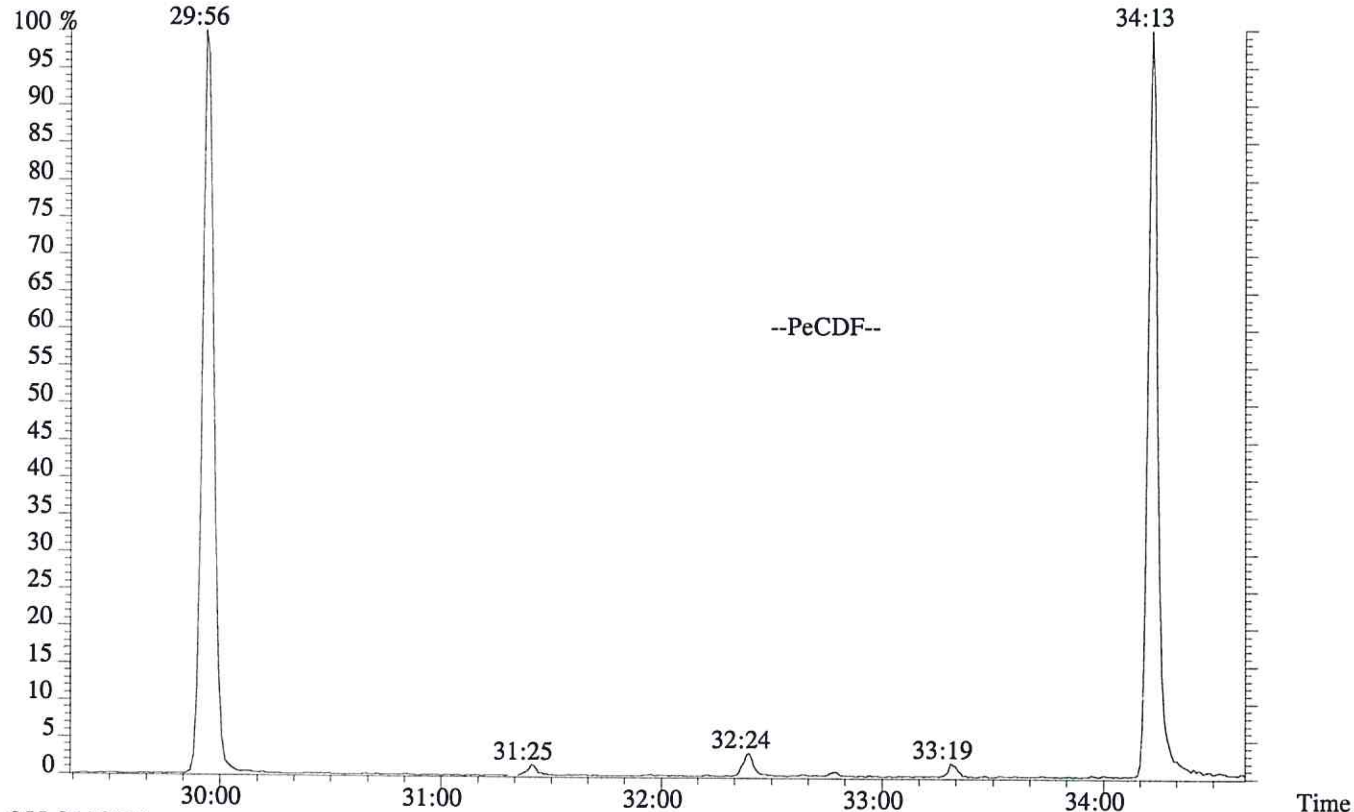
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



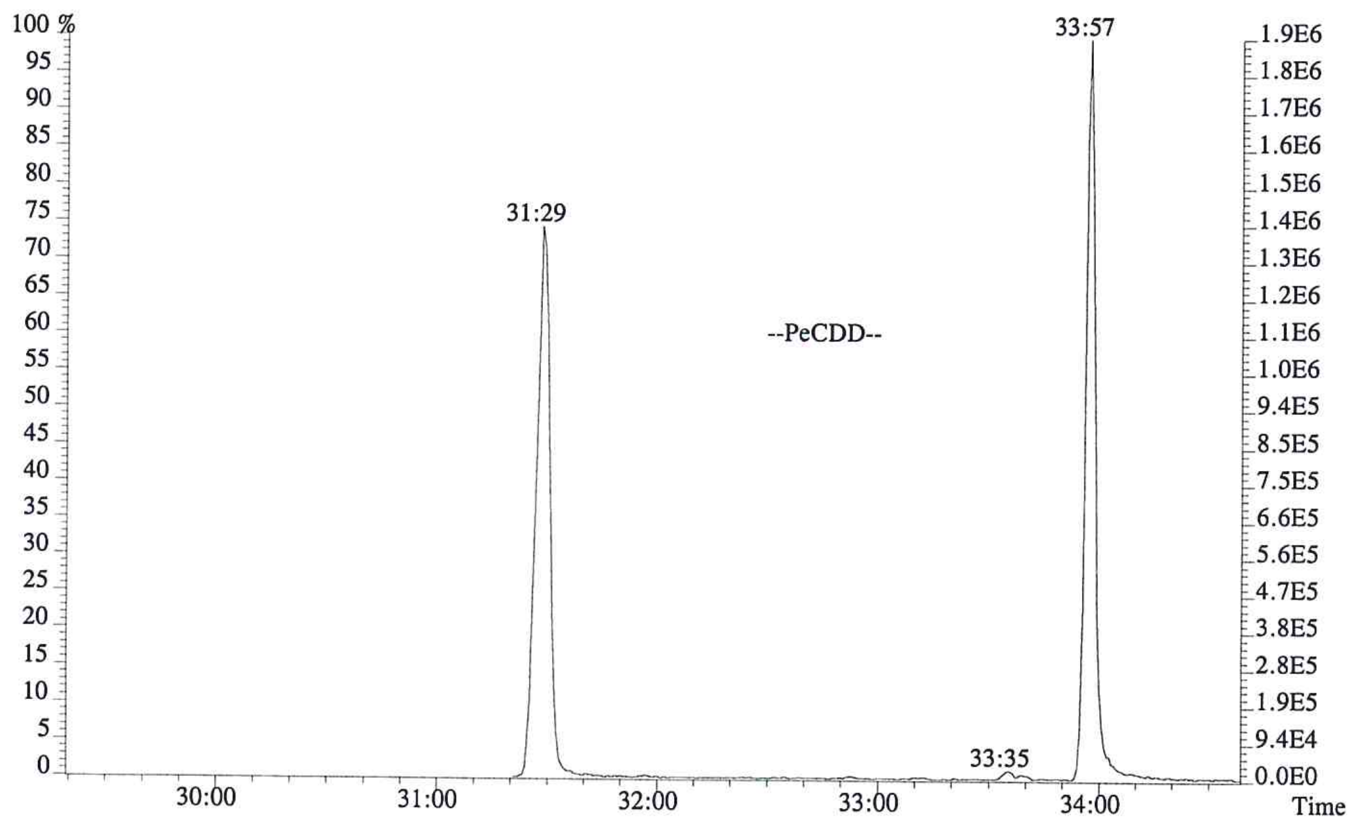
319.8965



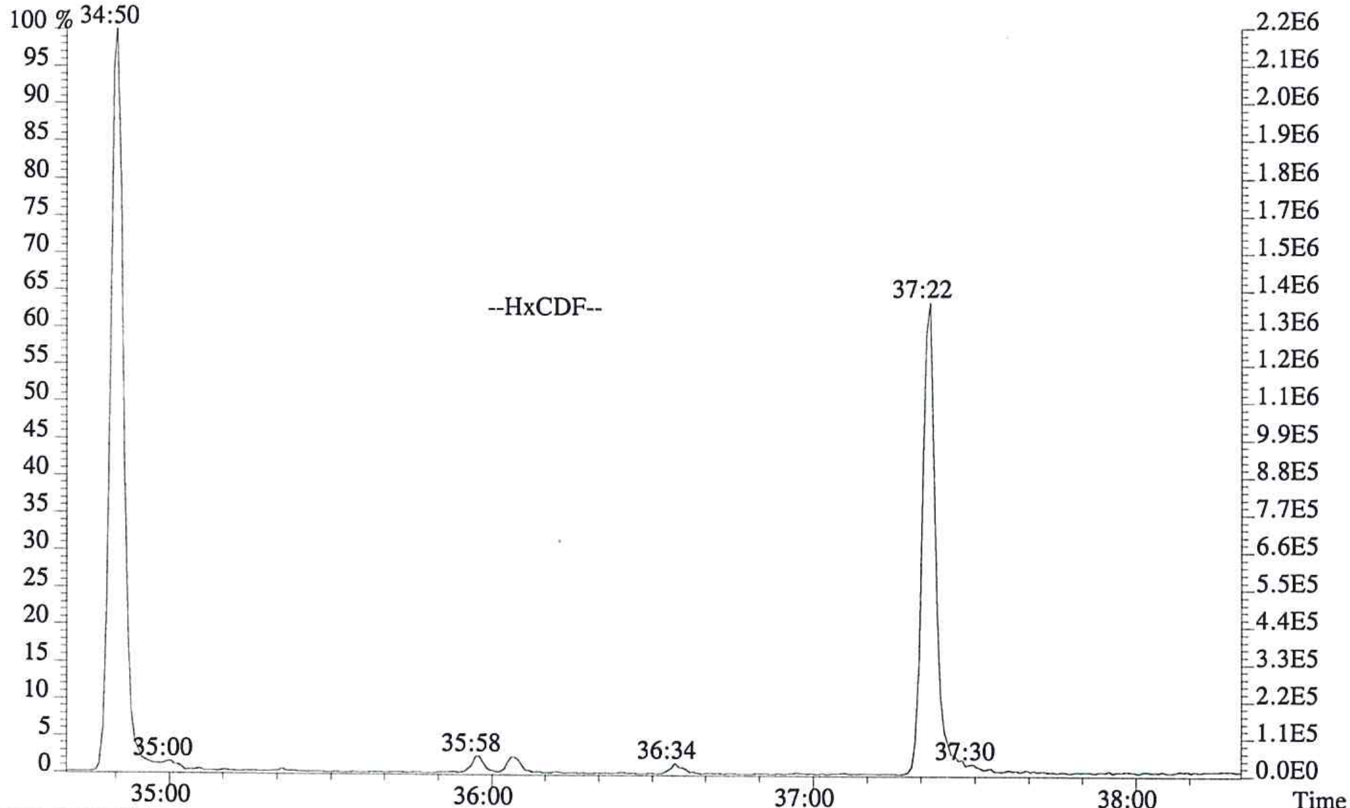
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



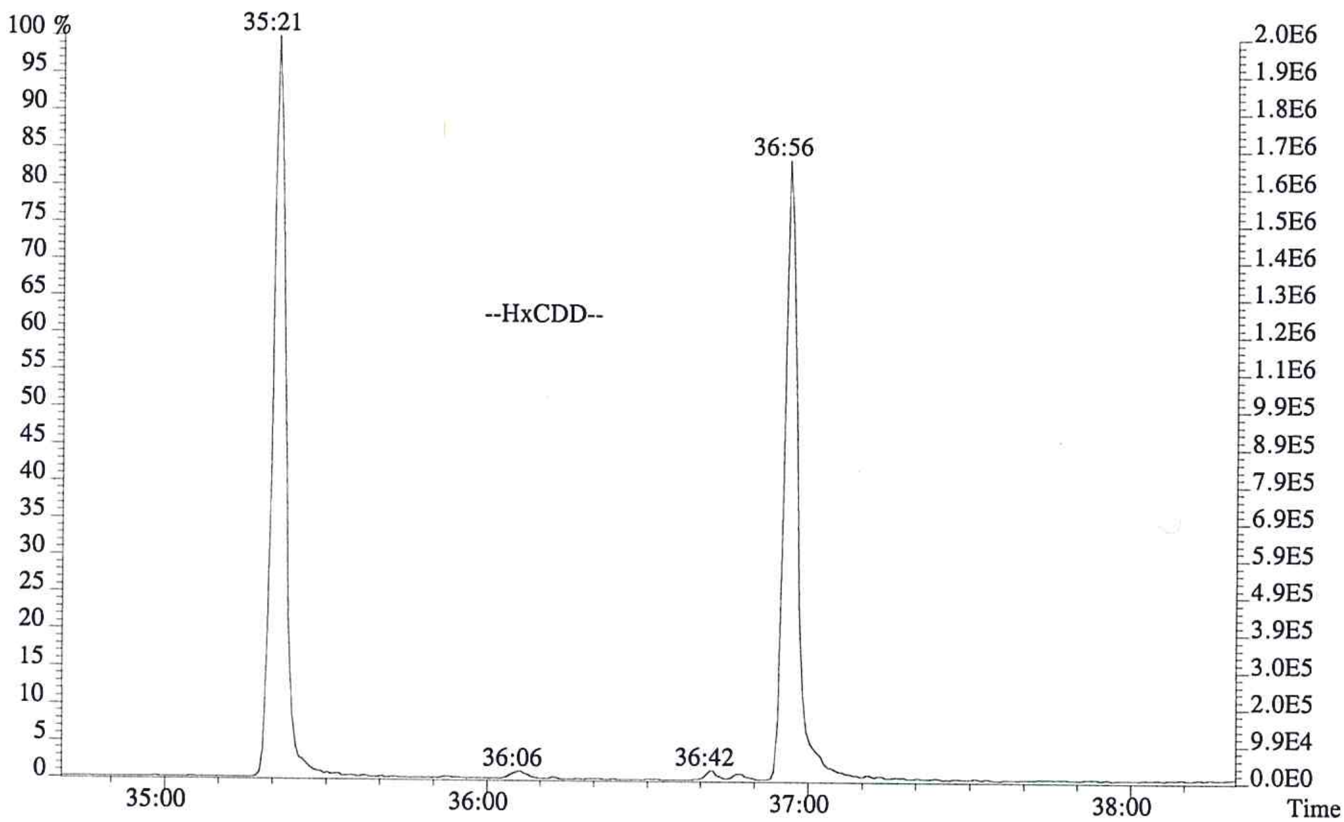
355.8546 F:2



File:P603990 #1-329 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	4.7	3.9 - 6.45	-6.5
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	4.9	4.2 - 6.0	-1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	25.0	20.5 - 30.5	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	51	41 - 60.5	1.9
13C-1,2,3,4-TCDF	M/M+2	0.78	0.65-0.89	40	35.5-70	-20.5
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	49	35.5-70	-1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38 - 65	-0.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38.5 - 65	-0.8
13C-1,2,3,7,8,9-HxCDF		0.51	0.43-0.59	50	37 - 67.5	0.5
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	2.4

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	7.317e+03	9.442e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	5.372e+04	3.478e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.621e+03	7.353e+03	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	7.876e+04	9.855e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.179e+05	7.427e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.170e+05	7.340e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.766e+04	7.400e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	6.477e+04	8.258e+04	0.78	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	5.848e+04	7.390e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	6.187e+04	7.805e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	7.014e+04	5.687e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.354e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	1.20e+03	1.1e+03	1.69e+06	3.98e+03	4.2e+02
3	2,3,4,7,8-PeCDF	1.05e+07	6.46e+03	1.6e+03	6.82e+06	1.05e+04	6.5e+02
11	2,3,7,8-TCDD	1.05e+06	1.33e+03	7.9e+02	1.39e+06	1.12e+03	1.2e+03
18	13C-2,3,7,8-TCDF	1.41e+07	5.64e+03	2.5e+03	1.78e+07	2.72e+03	6.5e+03
19	13C-1,2,3,7,8-PeCDF	2.17e+07	2.08e+04	1.0e+03	1.36e+07	1.43e+04	9.6e+02
20	13C-2,3,4,7,8-PeCDF	2.28e+07	2.08e+04	1.1e+03	1.43e+07	1.43e+04	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	7.47e+06	1.48e+03	5.0e+03	1.45e+07	2.10e+03	6.9e+03
26	13C-1,2,3,4-TCDF	1.06e+07	5.64e+03	1.9e+03	1.34e+07	2.72e+03	4.9e+03
27	13C-2,3,7,8-TCDD	1.08e+07	8.37e+03	1.3e+03	1.37e+07	3.50e+03	3.9e+03
33	13C-1,2,3,4-TCDD	1.14e+07	8.37e+03	1.4e+03	1.43e+07	3.50e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.40e+07	2.88e+03	4.8e+03	1.12e+07	9.96e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.55e+06	2.30e+03	1.1e+03			

ALS ENVIRONMENTAL
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Houston, TX 77099
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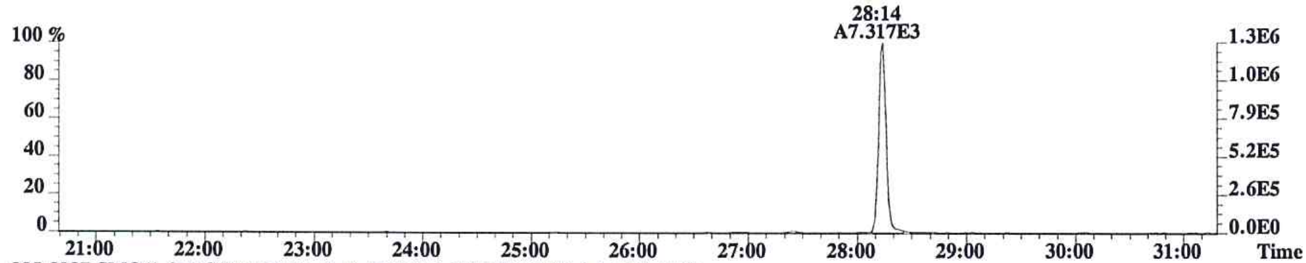
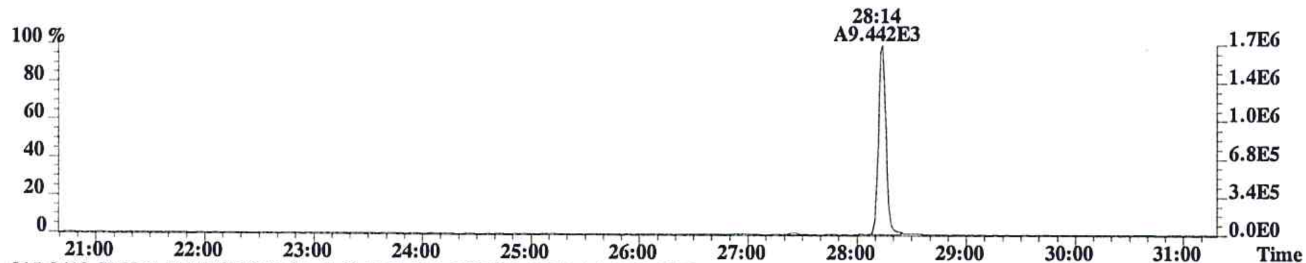
www.alsglobal.com

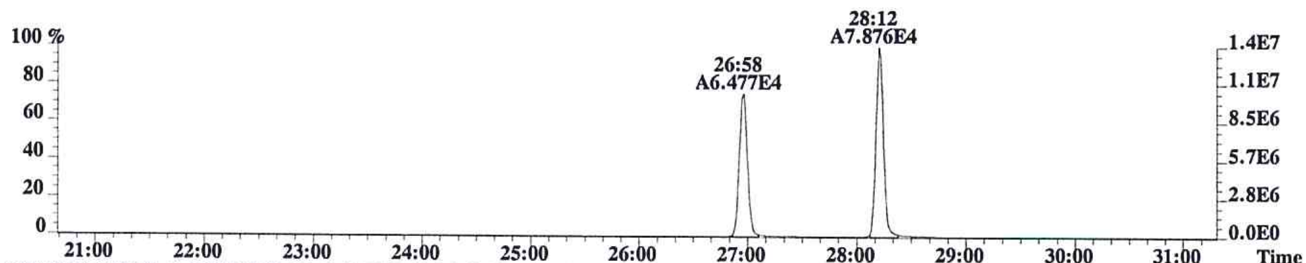
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



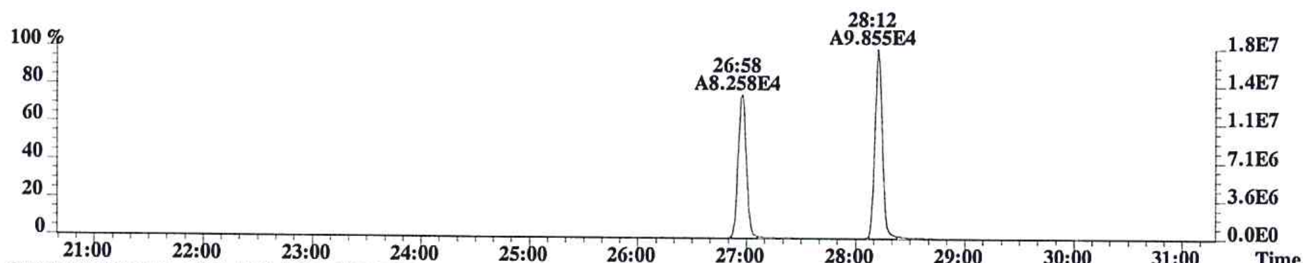
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



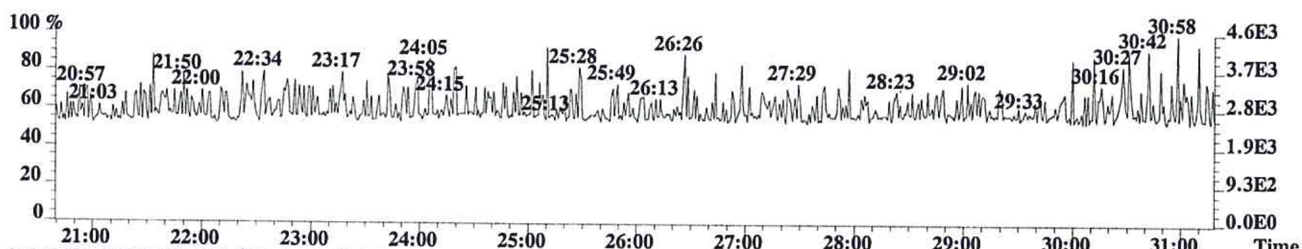
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



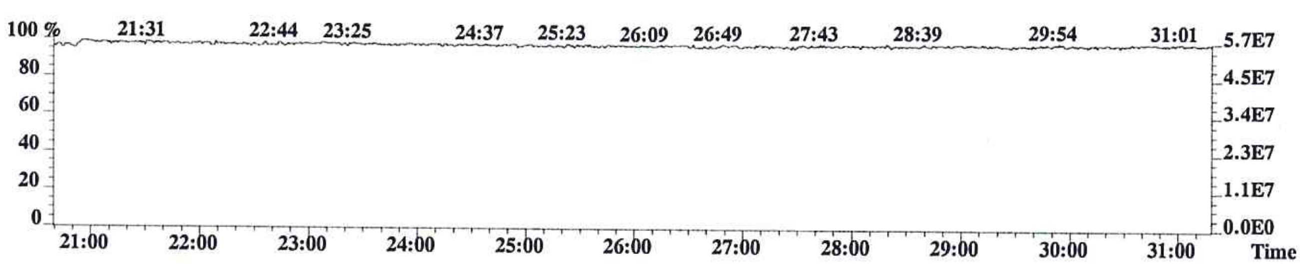
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



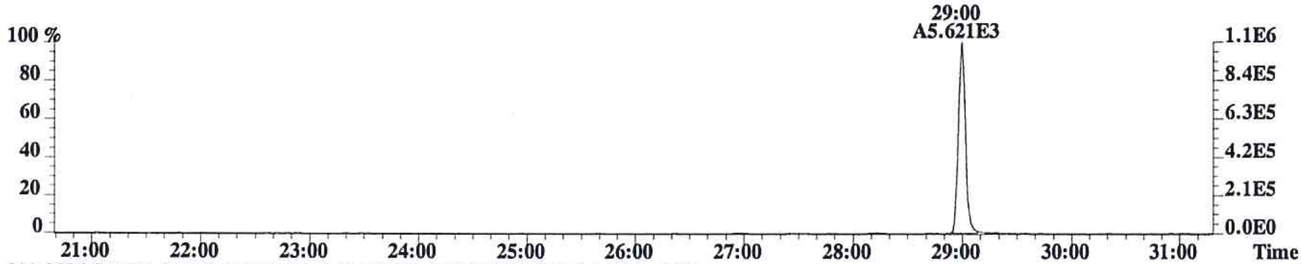
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



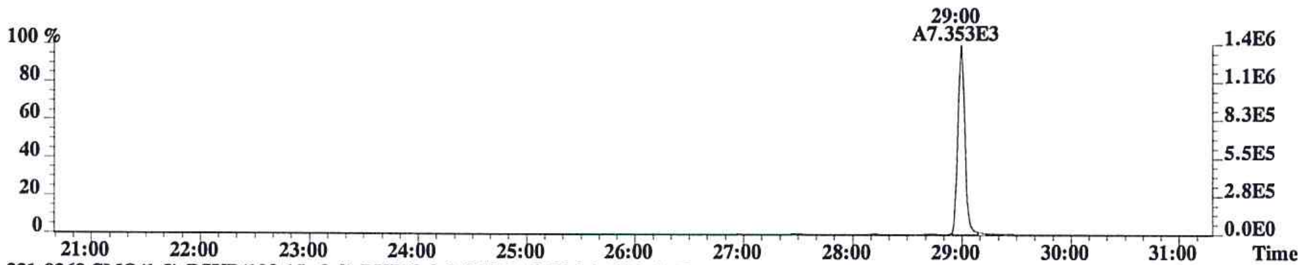
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



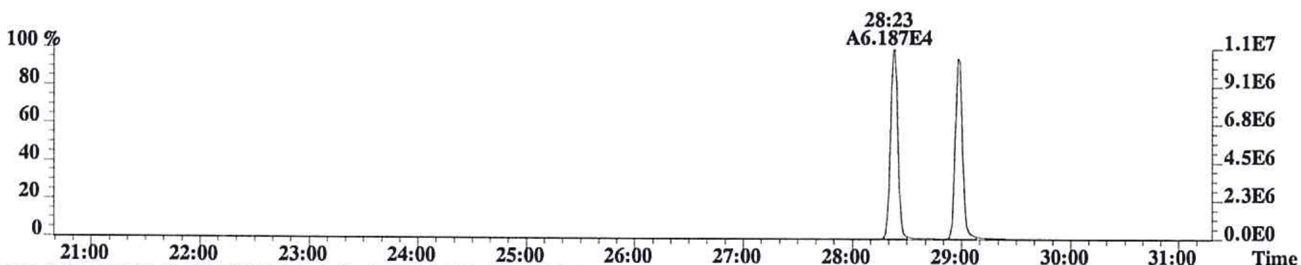
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



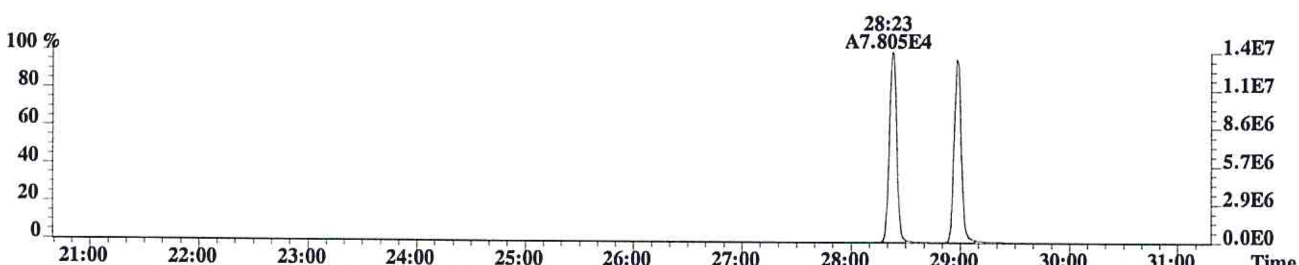
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



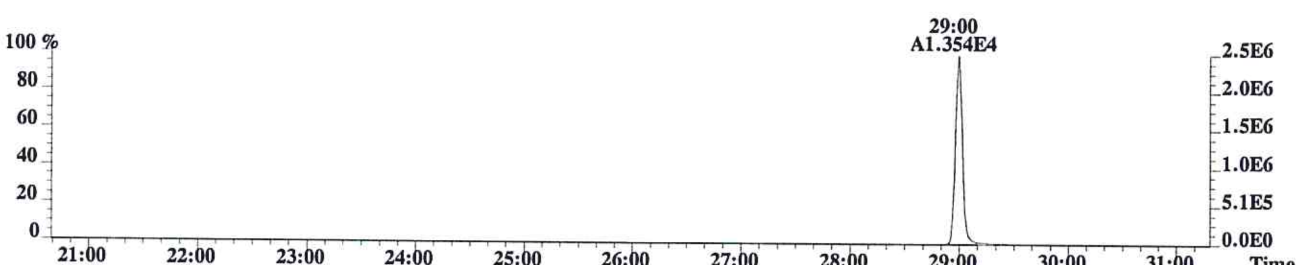
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8368.0,1.00%,F,T)



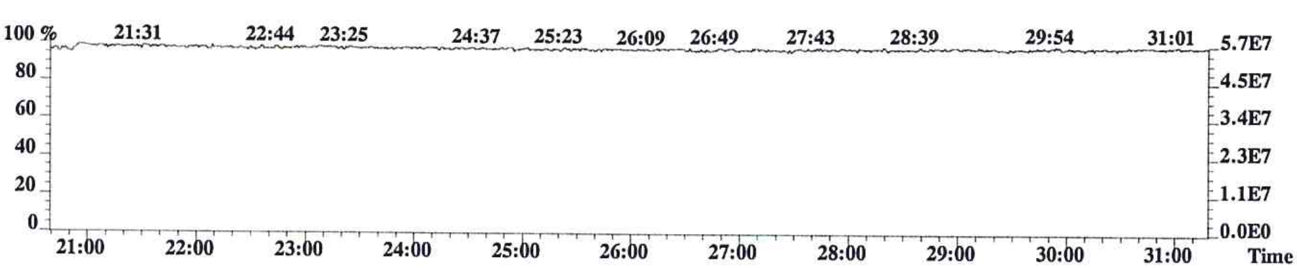
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



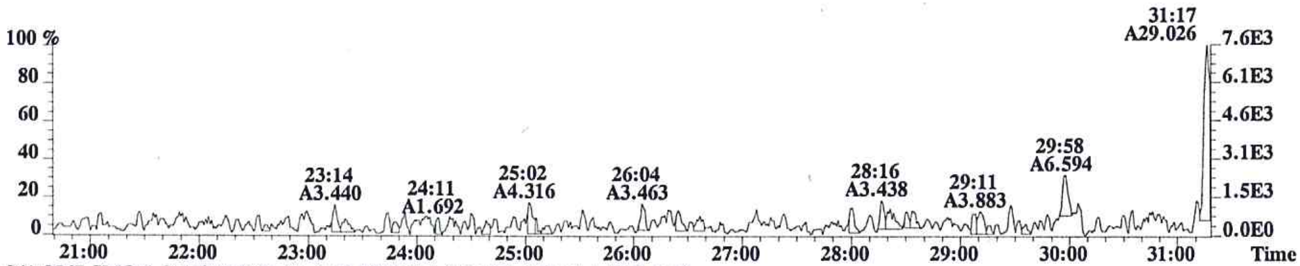
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



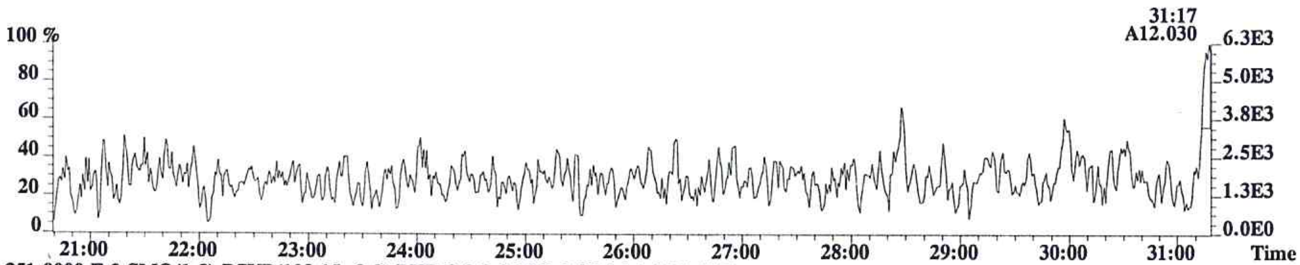
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



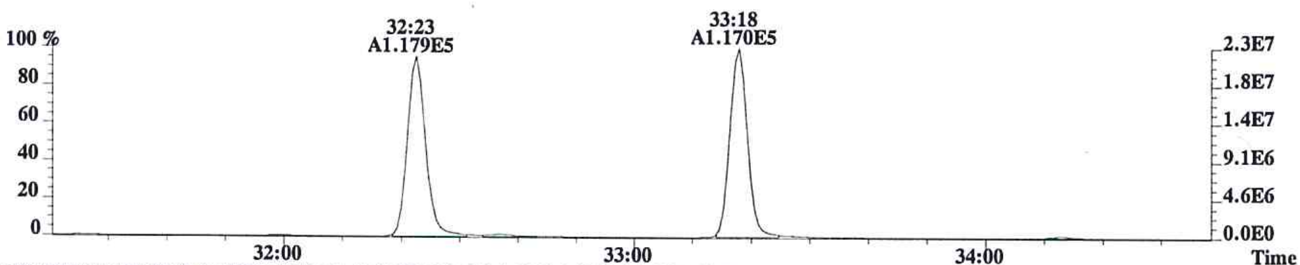
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



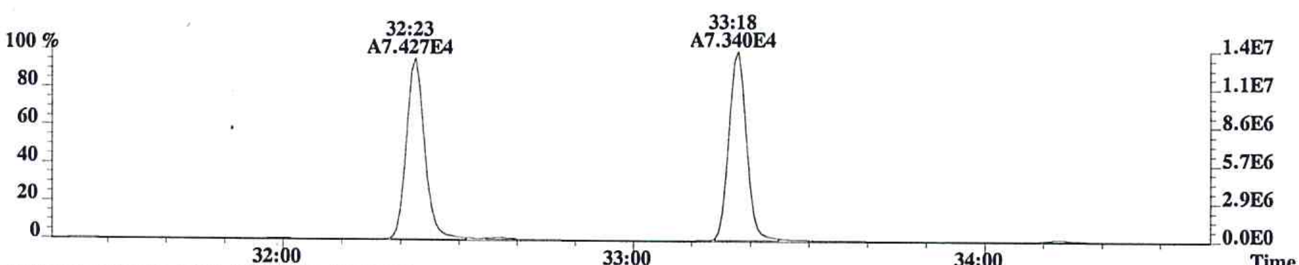
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



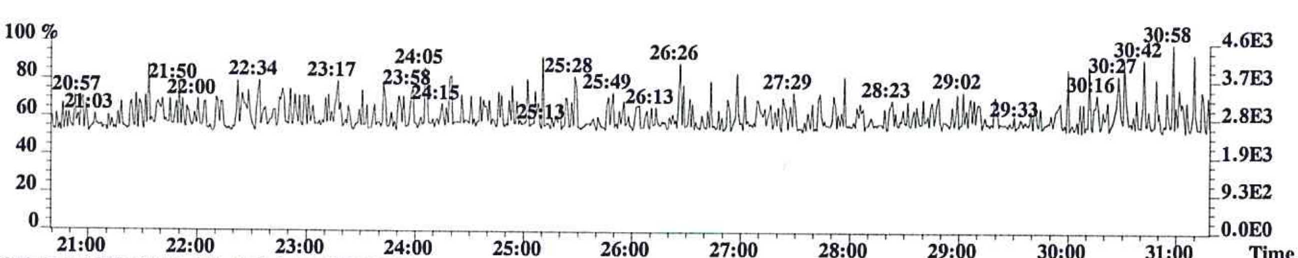
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



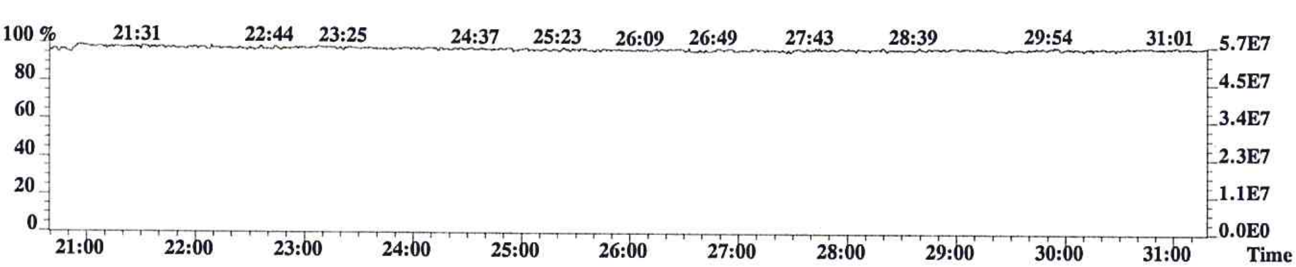
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



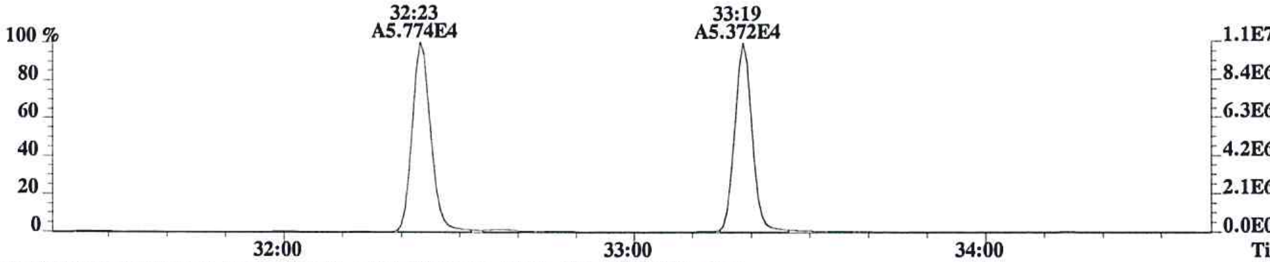
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



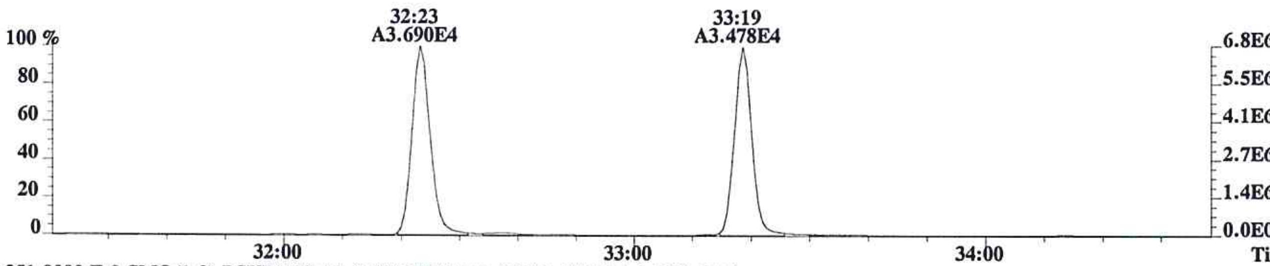
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



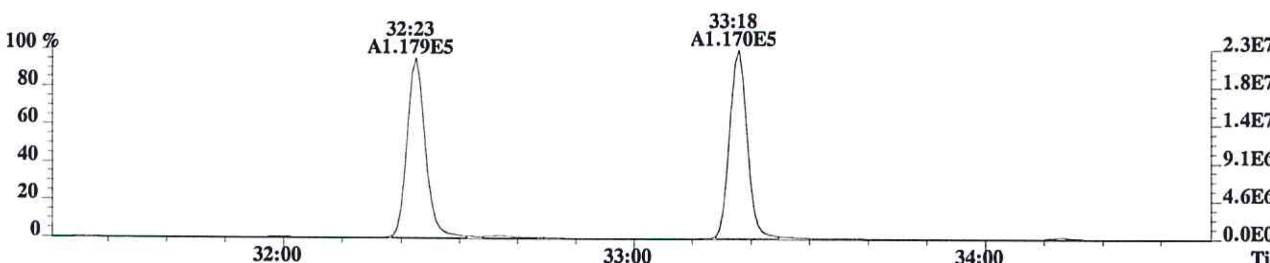
File:P603991 #1-298 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6464.0,1.00%,F,T)



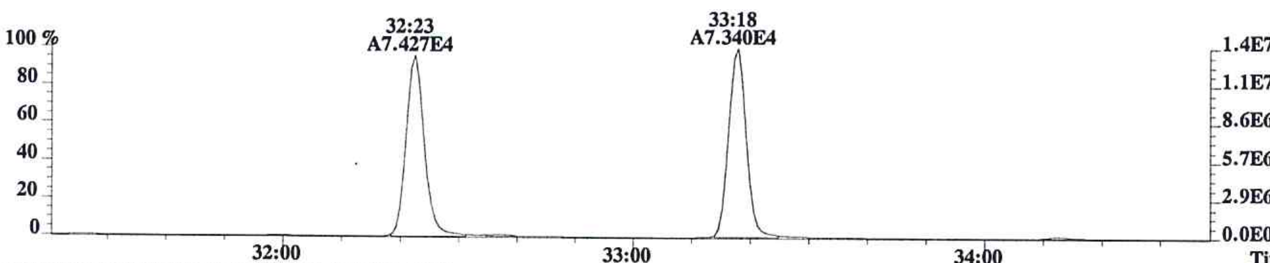
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10468.0,1.00%,F,T)



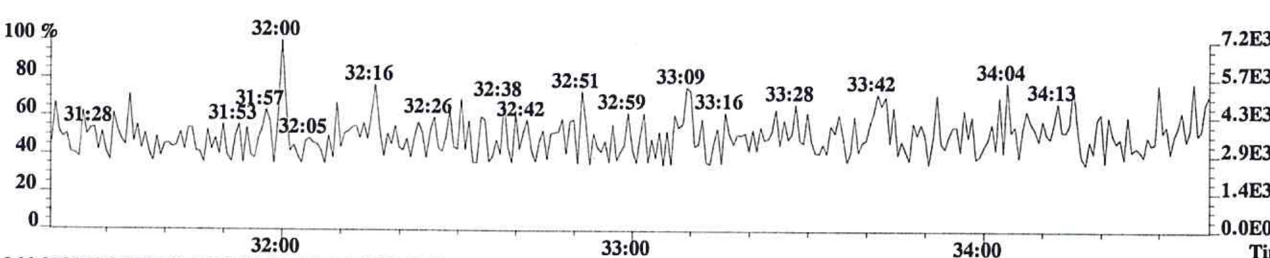
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



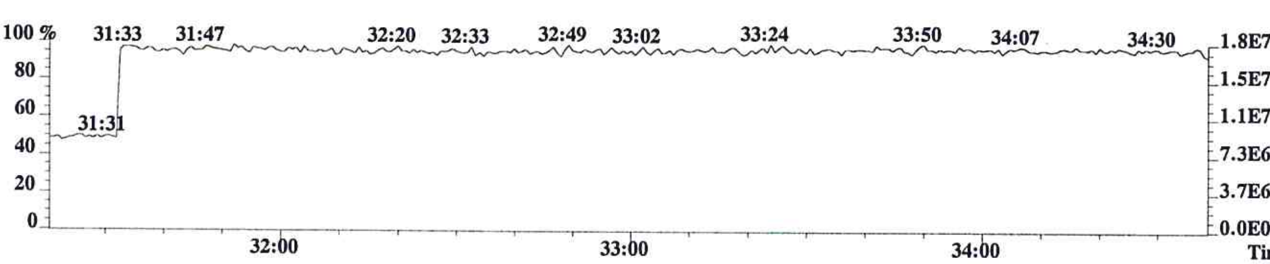
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



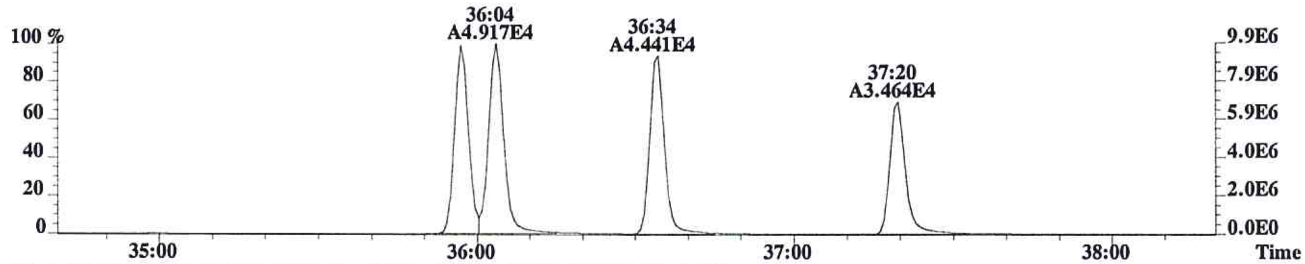
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



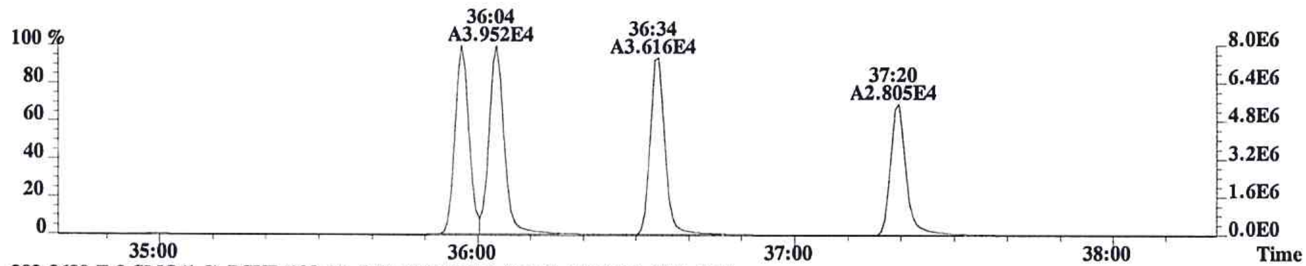
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



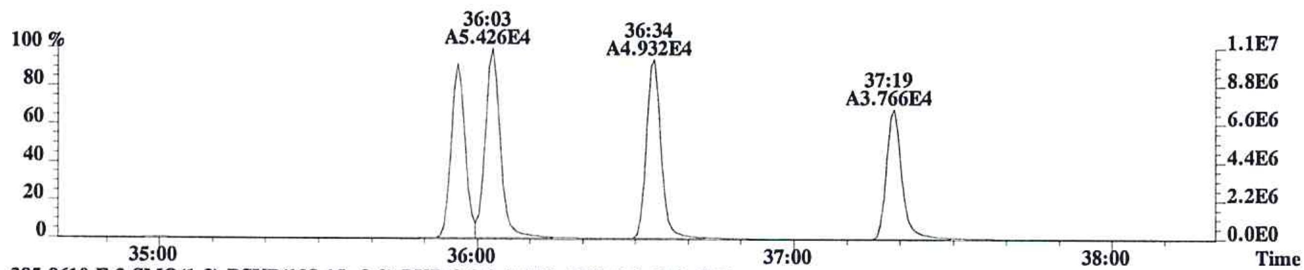
File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



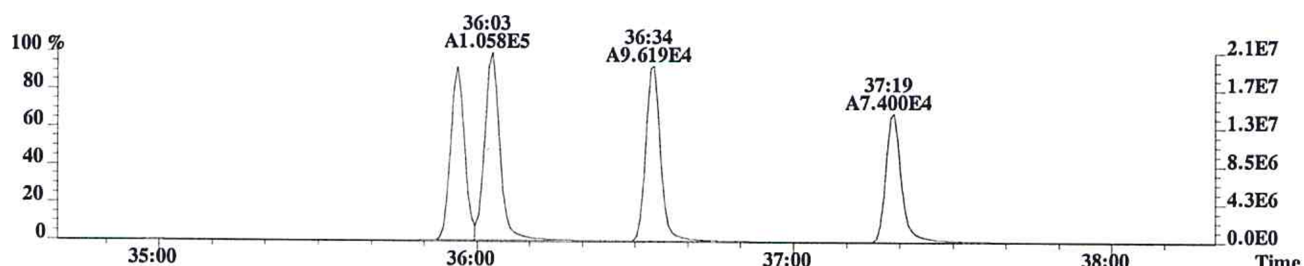
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



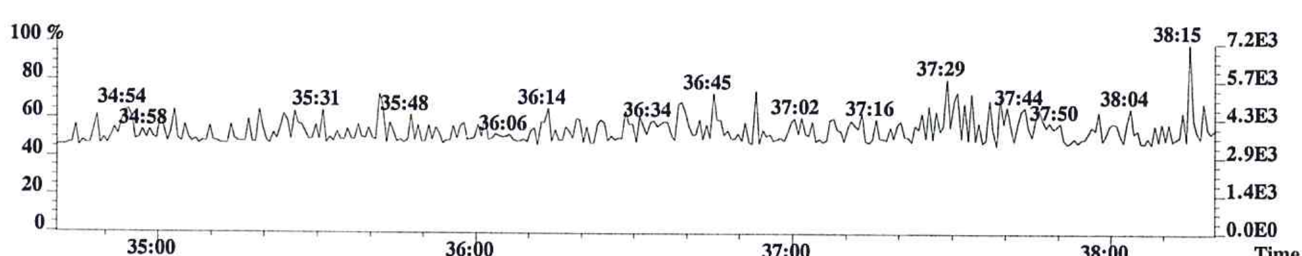
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)



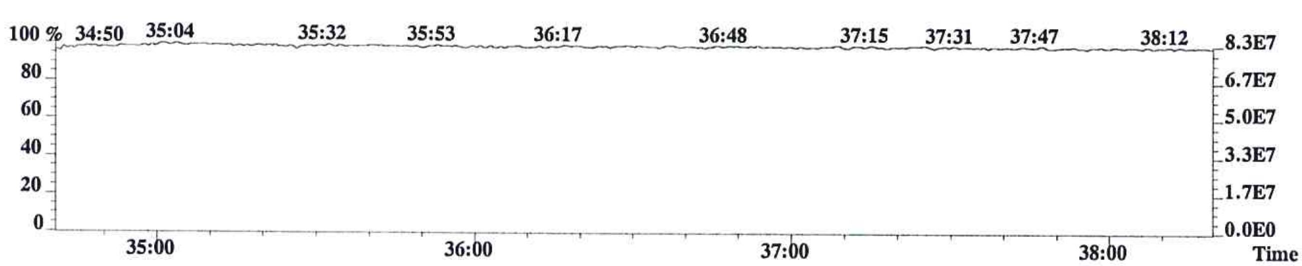
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.40%,F,T)



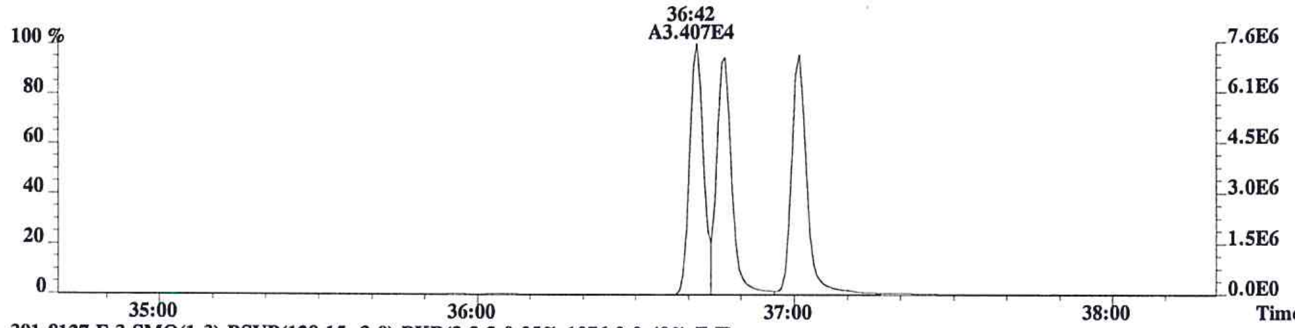
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



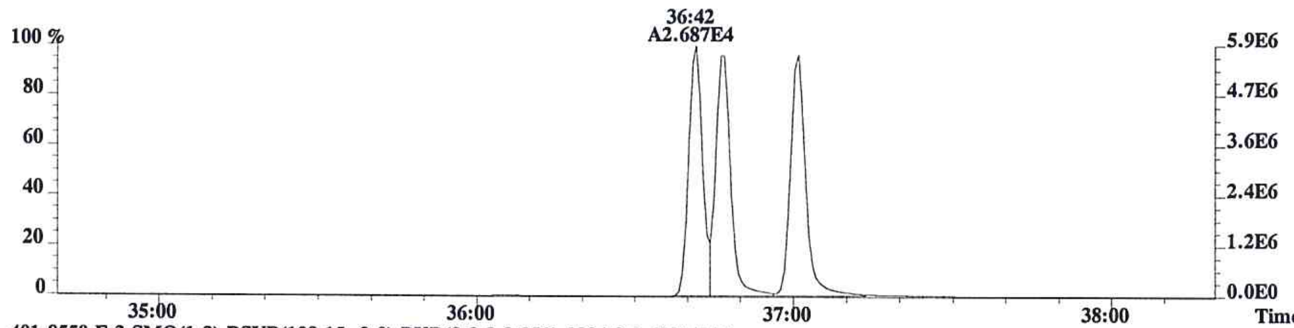
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



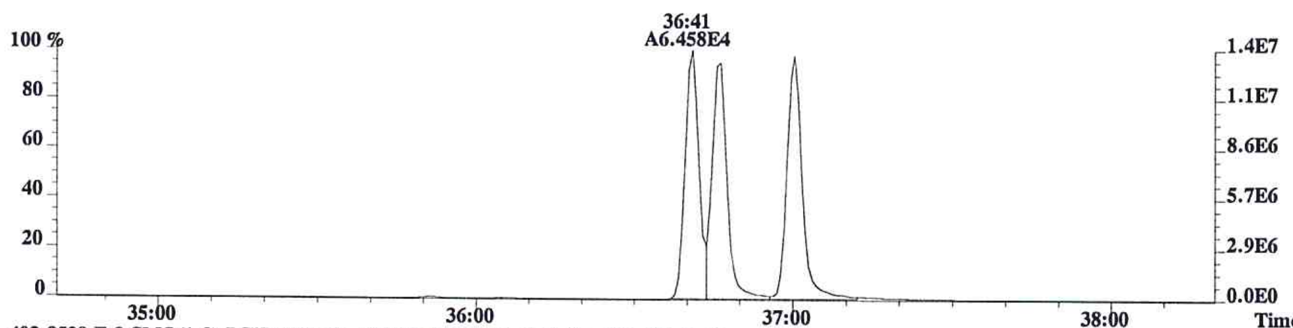
File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



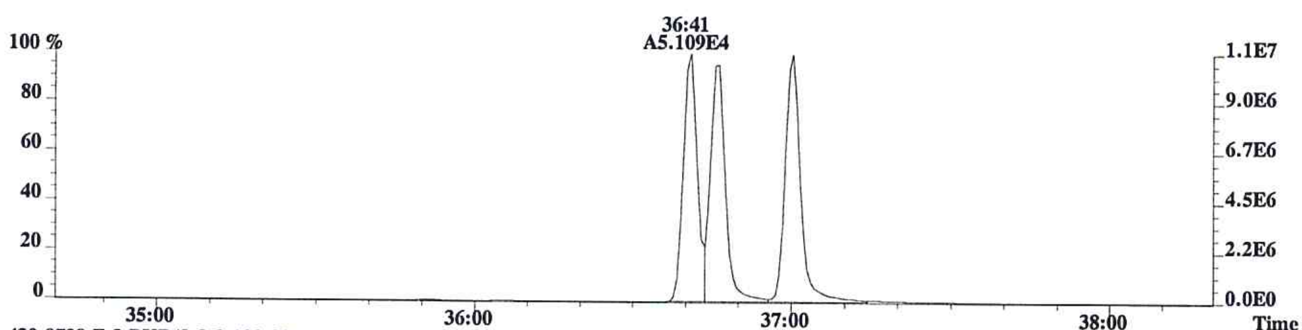
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



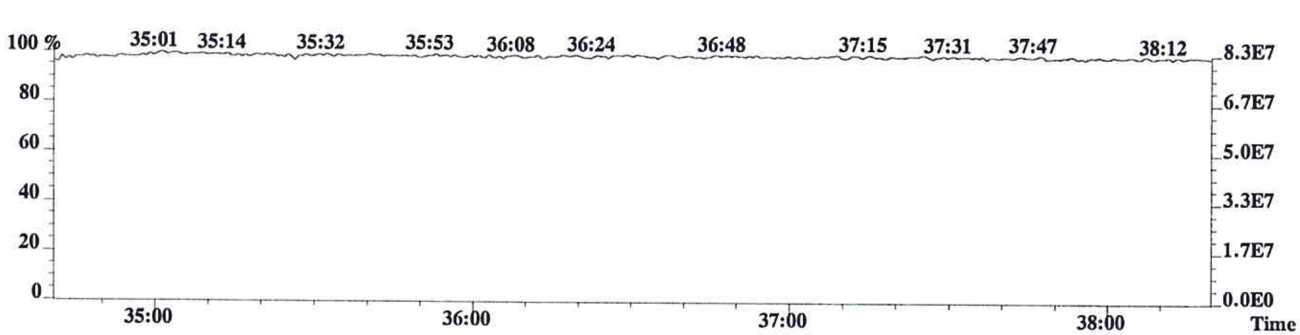
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Andy Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Andy Neir	

Description	Yes	No	NA	NR	ER#
included (and legible) for the entire sequence?					
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?	√				1
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration	
Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description
1	Manual Integration on CS1 in order to correct inconsistent baseline determinations between primary and secondary ions. Before and after chromatograms provided. Where there is no after chromatograph provided, the modification reflects an update to reconcile response values between Sample Response Summary and chromatograph.

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603981	25-JUN-16	09:17:10
173636	CS1	P603982	25-JUN-16	10:06:18
173637	CS2	P603983	25-JUN-16	11:09:26
173638	CS3	P603984	25-JUN-16	11:55:54
173639	CS4	P603985	25-JUN-16	12:52:51
173640	CS5	P603986	25-JUN-16	13:45:46
CS3 2ND SOURCE	CS3 2ND SOURCE	P603988	25-JUN-16	15:21:10

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160625.SPL
Page 1 of 2
Last Modified: Friday, July 01, 2016 08:45:44 Eastern Daylight Time
Printed: Friday, July 01, 2016 08:48:07 Eastern Daylight Time
Page Position (1, 1)

OPUS4: P6-160625SPMEI opus 4: P603988 res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	09:17	P603981	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 09:11
2		10:06	P603982	173636	CS1	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:09	P603983	173637	CS2	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		11:55	P603984	173638	CS3	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		12:52	P603985	173639	CS4	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		13:45	P603986	173640	CS5	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		14:32	P603987	NONANE	NONANE	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:21	P603988	CS3 2ND SOURCE	CS3 2ND SOURCE	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		16:34	P603989	NONANE	NONANE	Tray1:9	EPA1613_ALS	Dioxin_ALS		HRMS check 16:28
10			---	---	---	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11			---	---	---	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12			---	---	---	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13			---	---	---	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

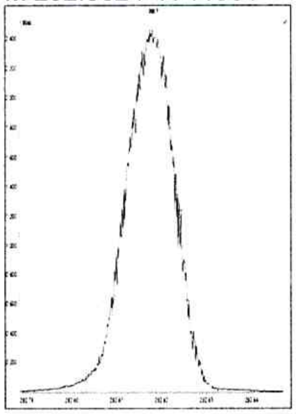
Processed: 06/25/16 JC

Logbook Form updated 07/01/16 to input lab sample ID's

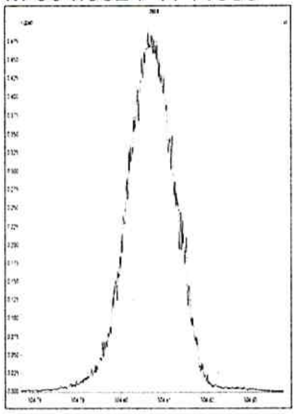
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:11:20 Eastern Daylight Time

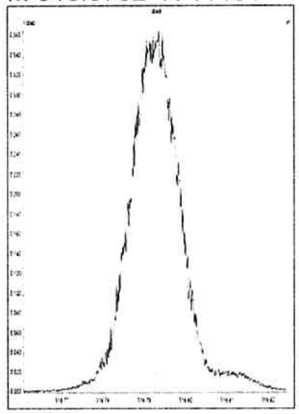
M 292.9824 R 11961



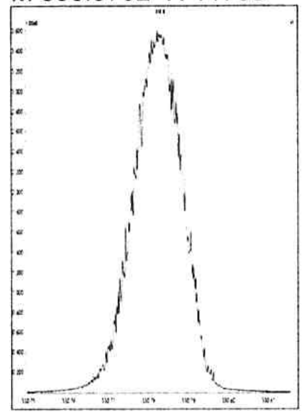
M 304.9824 R 11908



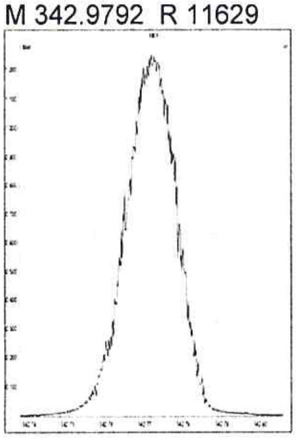
M 318.9792 R 11161



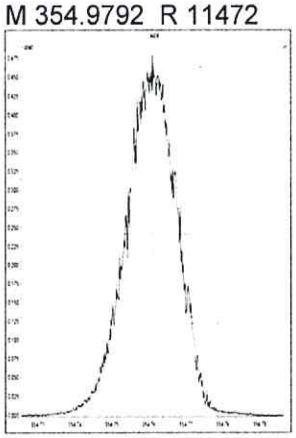
M 330.9792 R 11736



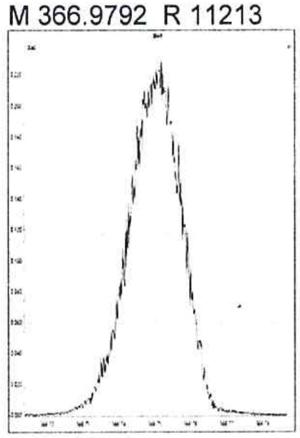
M 342.9792 R 11629



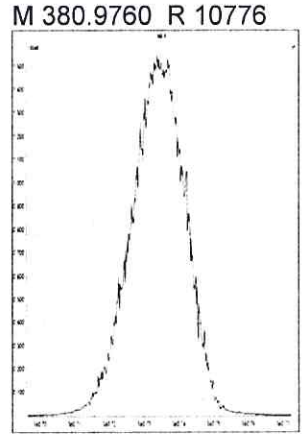
M 354.9792 R 11472



M 366.9792 R 11213



M 380.9760 R 10776

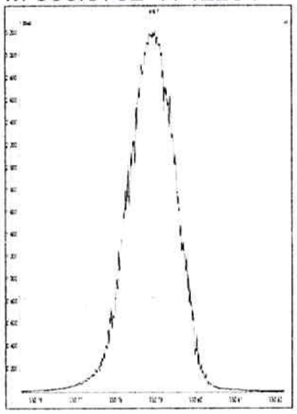


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

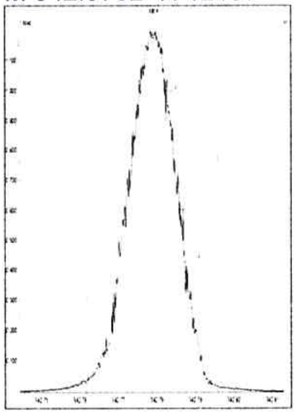
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:12:33 Eastern Daylight Time

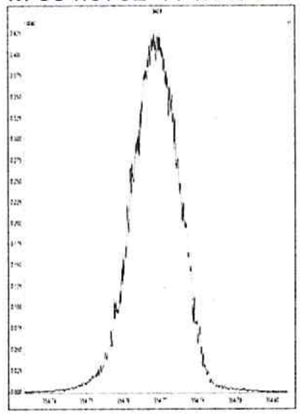
M 330.9792 R 12254



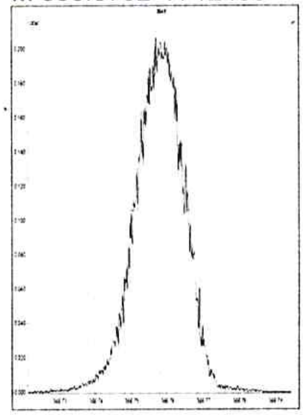
M 342.9792 R 12197



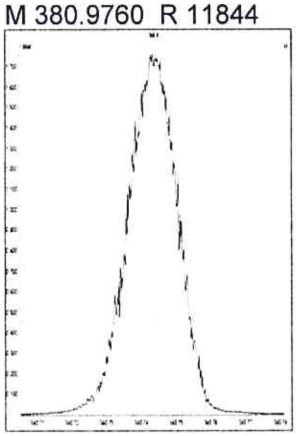
M 354.9792 R 12254



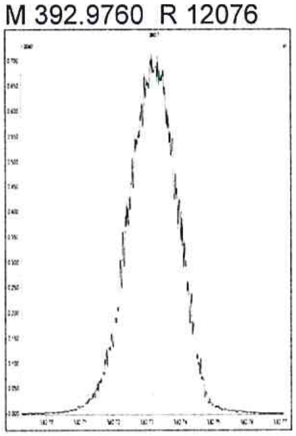
M 366.9792 R 12435



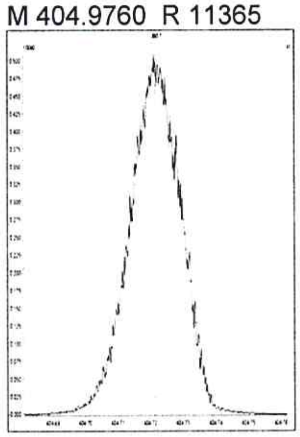
M 380.9760 R 11844



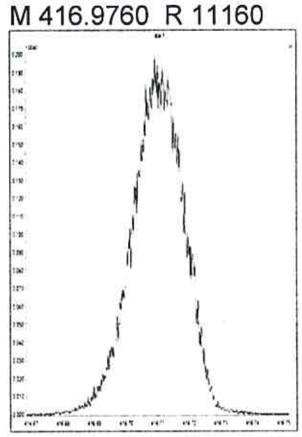
M 392.9760 R 12076



M 404.9760 R 11365



M 416.9760 R 11160

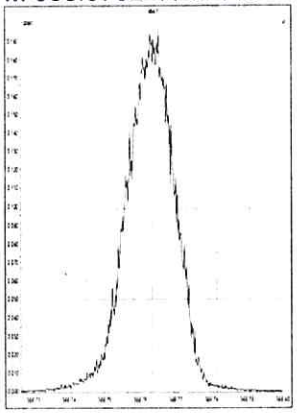


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

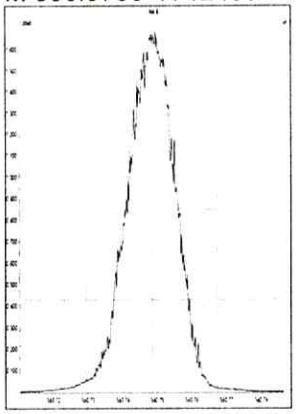
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:13:42 Eastern Daylight Time

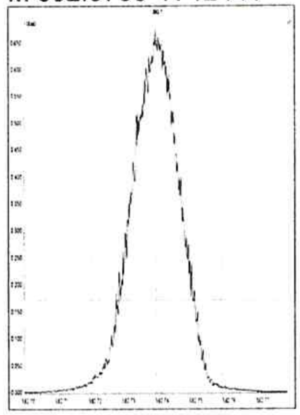
M 366.9792 R 12440



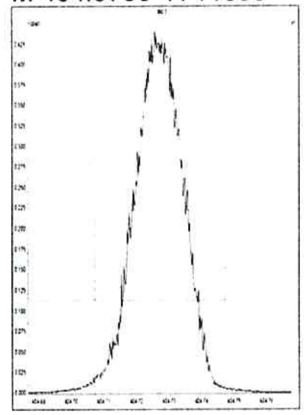
M 380.9760 R 12439



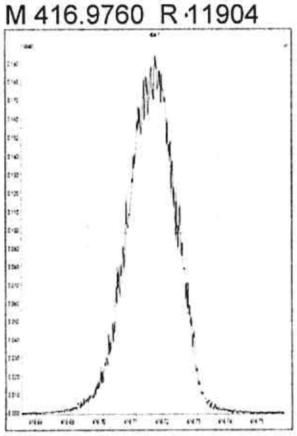
M 392.9760 R 12441



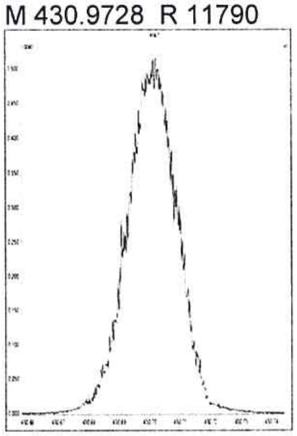
M 404.9760 R 11850



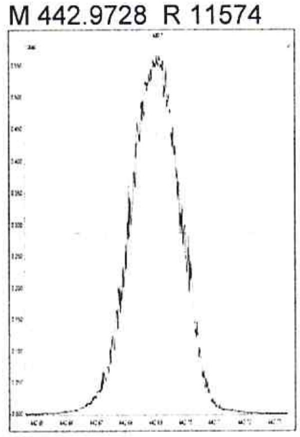
M 416.9760 R 11904



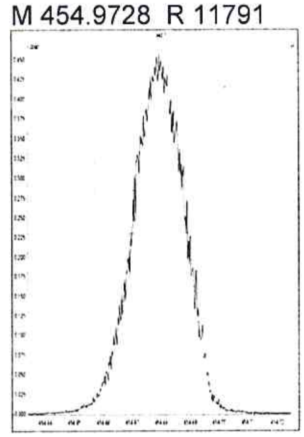
M 430.9728 R 11790



M 442.9728 R 11574



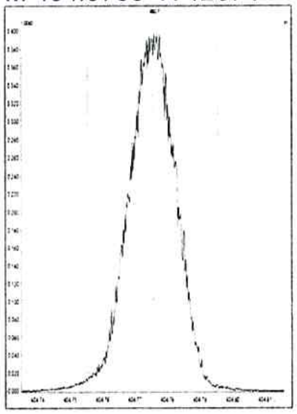
M 454.9728 R 11791



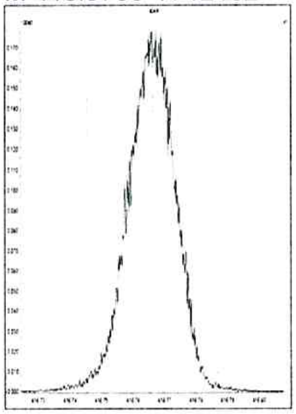
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:14:56 Eastern Daylight Time

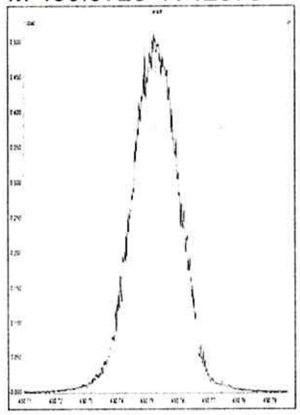
M 404.9760 R 12374



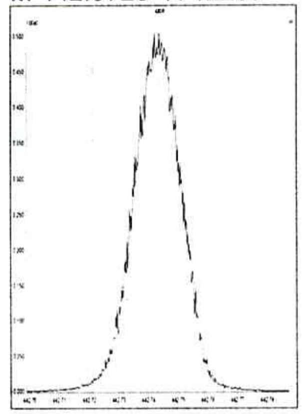
M 416.9760 R 12132



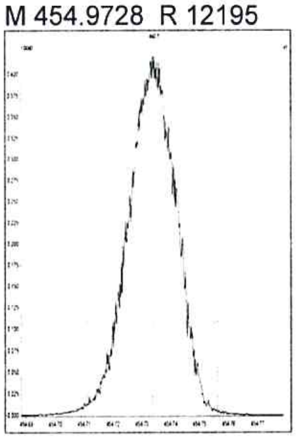
M 430.9728 R 12376



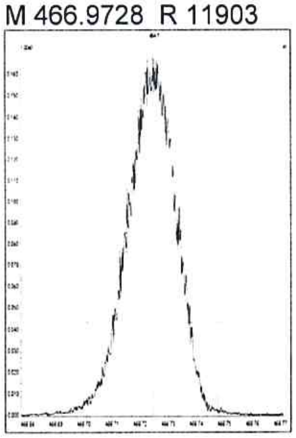
M 442.9728 R 12257



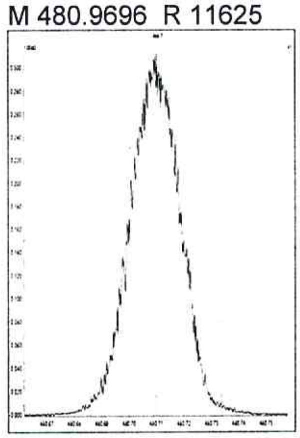
M 454.9728 R 12195



M 466.9728 R 11903



M 480.9696 R 11625

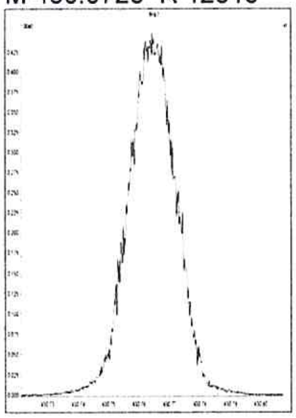


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

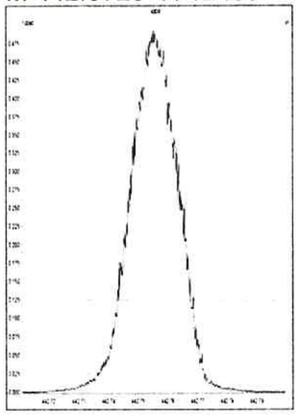
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:16:07 Eastern Daylight Time

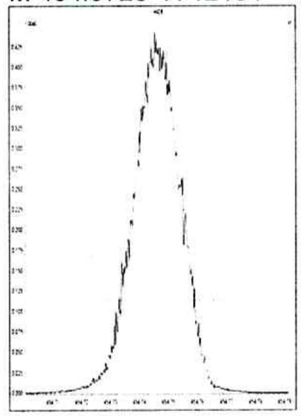
M 430.9728 R 12315



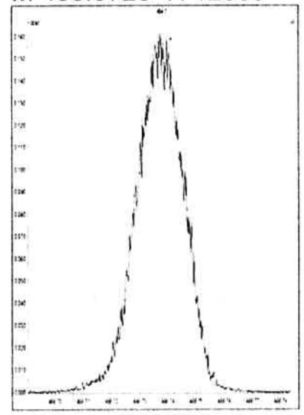
M 442.9728 R 12436



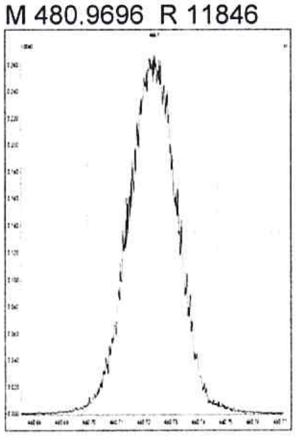
M 454.9728 R 12191



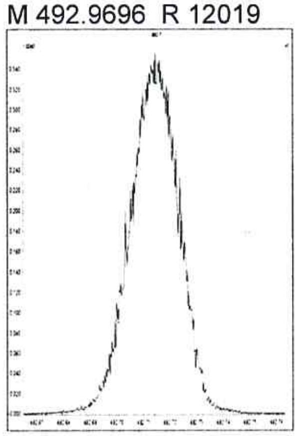
M 466.9728 R 12689



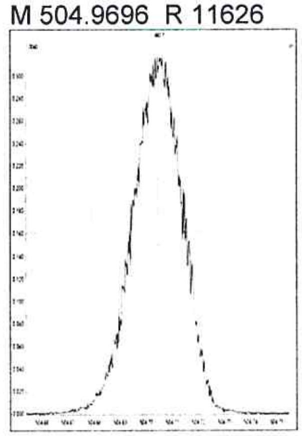
M 480.9696 R 11846



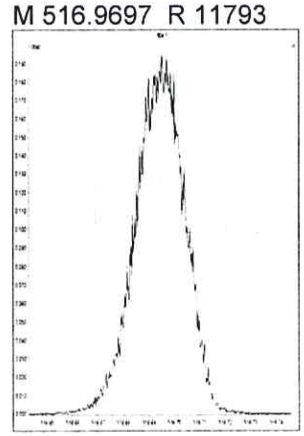
M 492.9696 R 12019



M 504.9696 R 11626



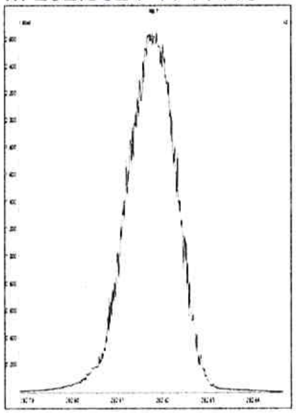
M 516.9697 R 11793



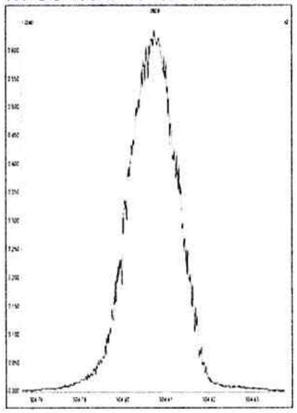
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

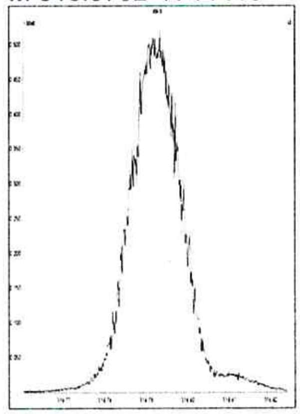
M 292.9824 R 11415



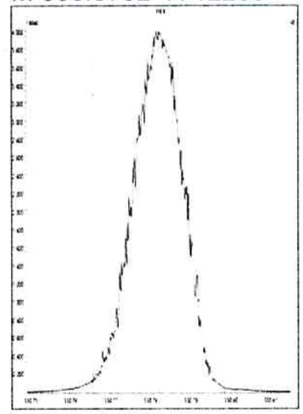
M 304.9824 R 12074



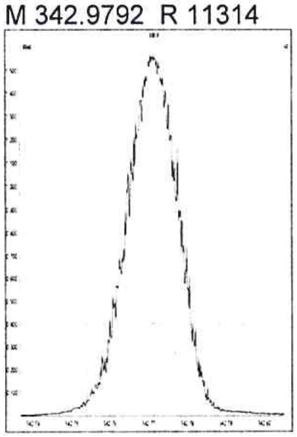
M 318.9792 R 11416



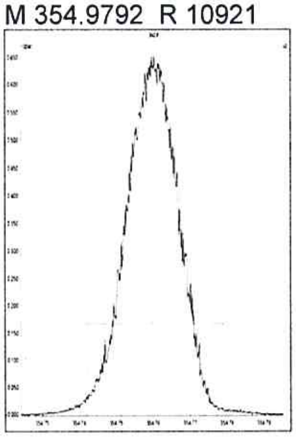
M 330.9792 R 12259



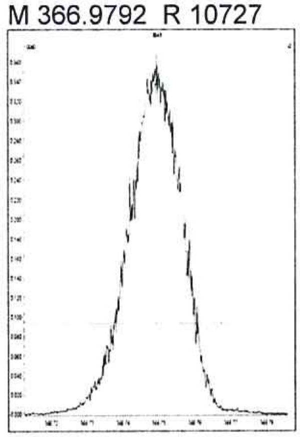
M 342.9792 R 11314



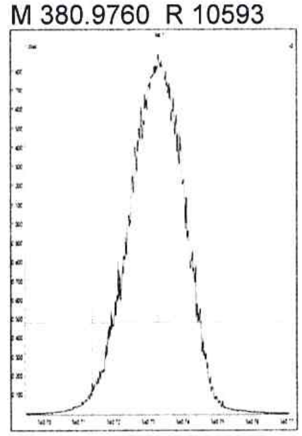
M 354.9792 R 10921



M 366.9792 R 10727



M 380.9760 R 10593

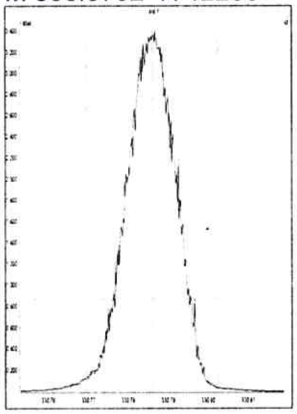


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

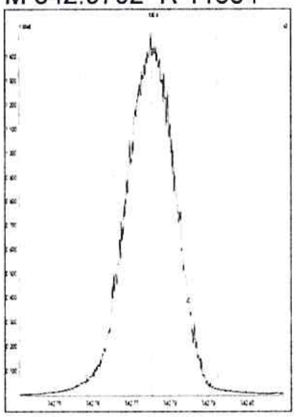
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

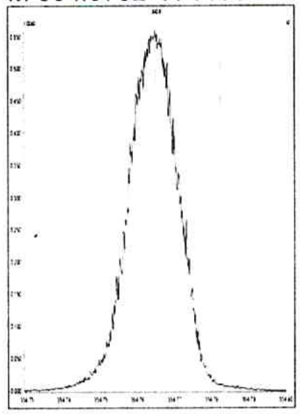
M 330.9792 R 12253



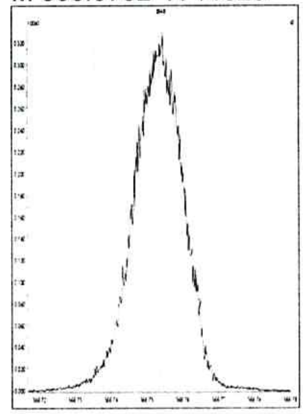
M 342.9792 R 11684



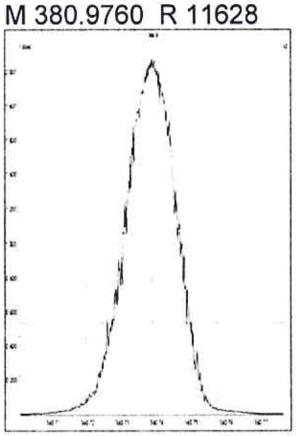
M 354.9792 R 11904



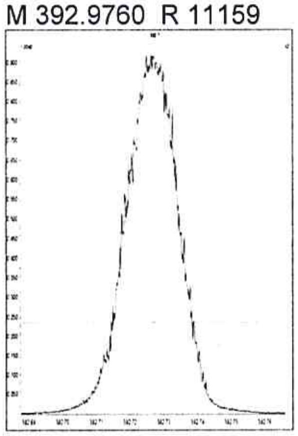
M 366.9792 R 11523



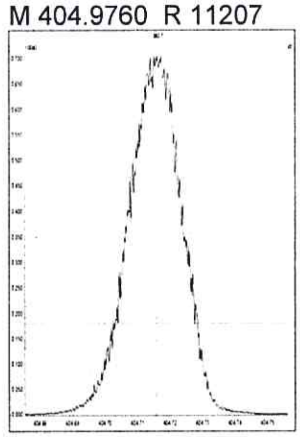
M 380.9760 R 11628



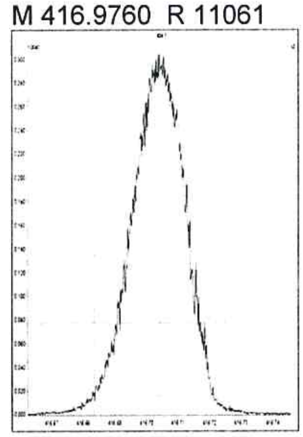
M 392.9760 R 11159



M 404.9760 R 11207



M 416.9760 R 11061

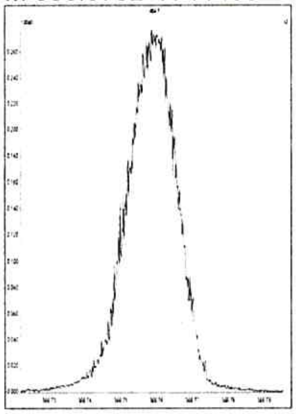


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

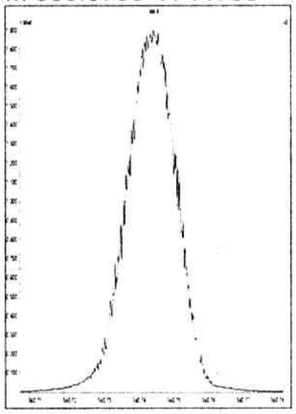
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

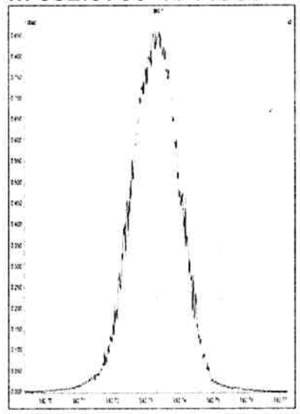
M 366.9792 R 11465



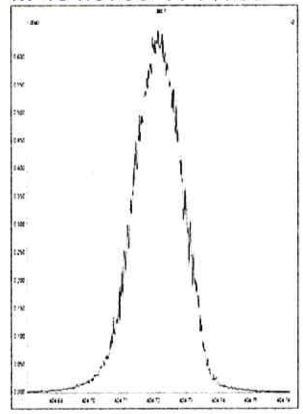
M 380.9760 R 11738



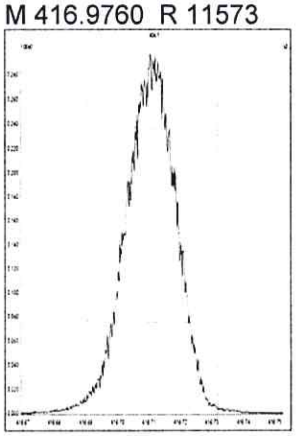
M 392.9760 R 11903



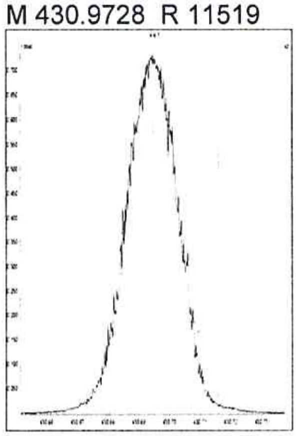
M 404.9760 R 11738



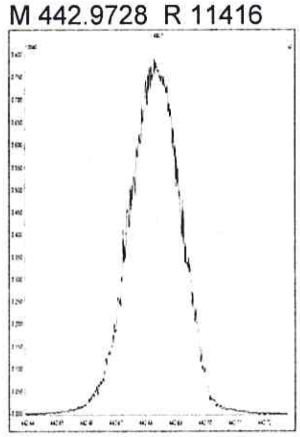
M 416.9760 R 11573



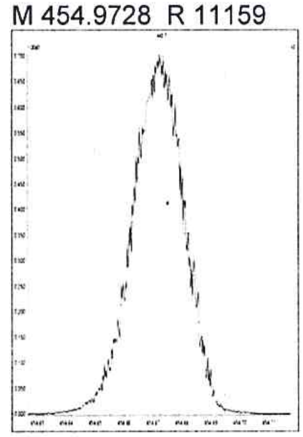
M 430.9728 R 11519



M 442.9728 R 11416



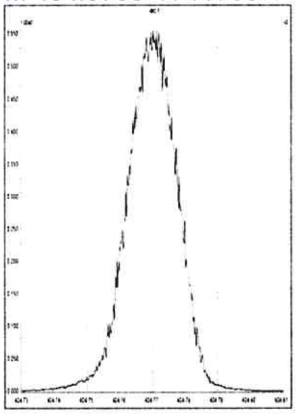
M 454.9728 R 11159



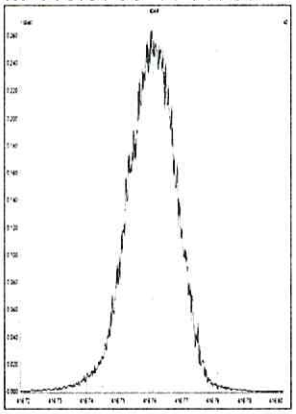
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

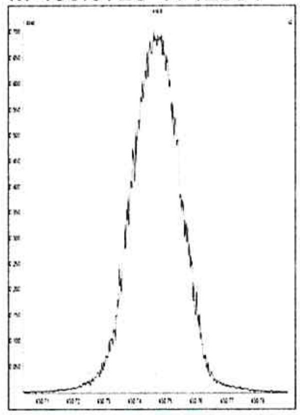
M 404.9760 R 11735



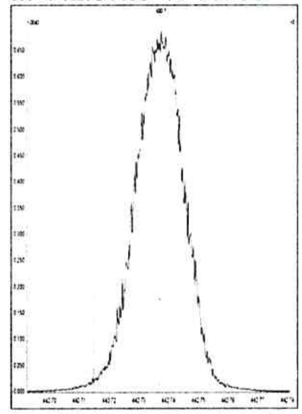
M 416.9760 R 11789



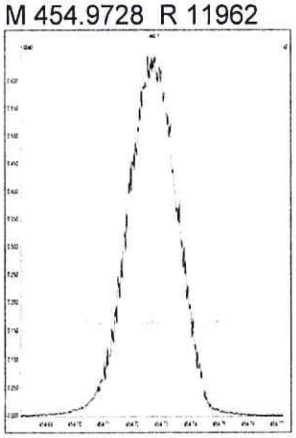
M 430.9728 R 12081



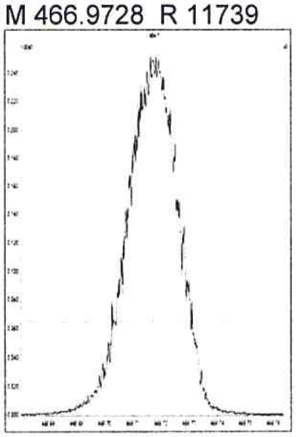
M 442.9728 R 11963



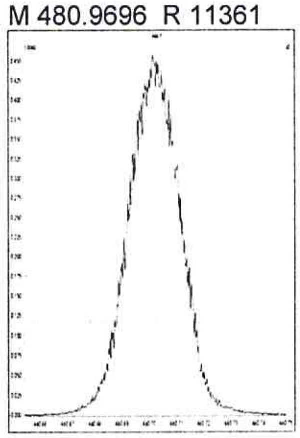
M 454.9728 R 11962



M 466.9728 R 11739



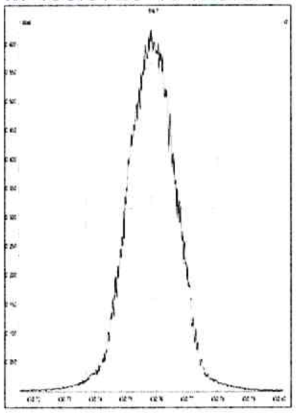
M 480.9696 R 11361



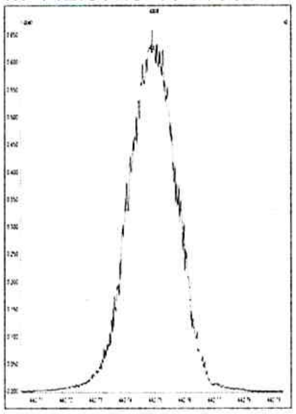
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time

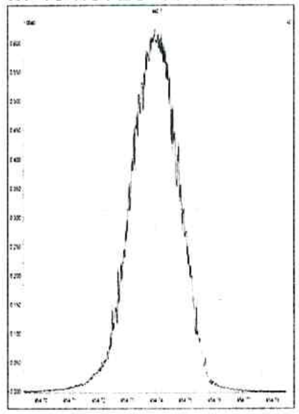
M 430.9728 R 12376



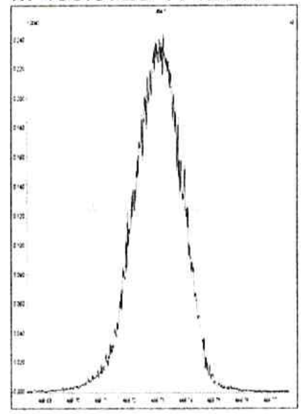
M 442.9728 R 11960



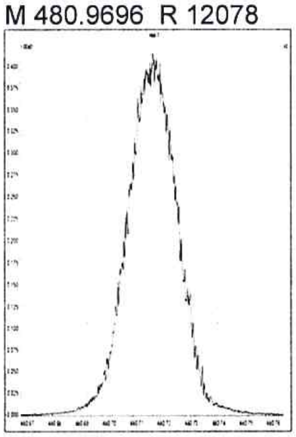
M 454.9728 R 11905



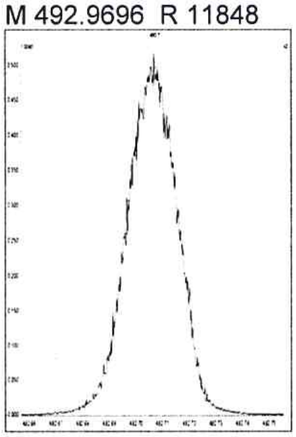
M 466.9728 R 12018



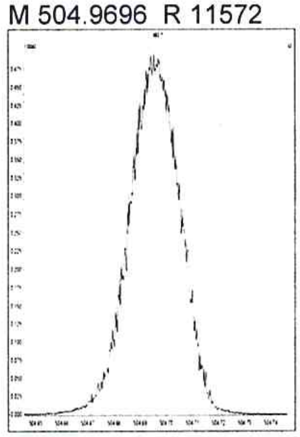
M 480.9696 R 12078



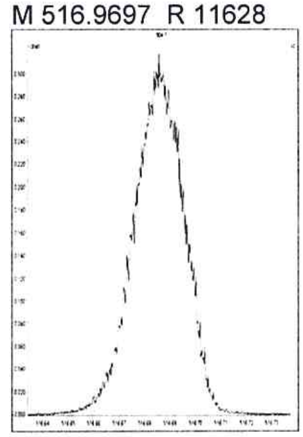
M 492.9696 R 11848



M 504.9696 R 11572



M 516.9697 R 11628



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

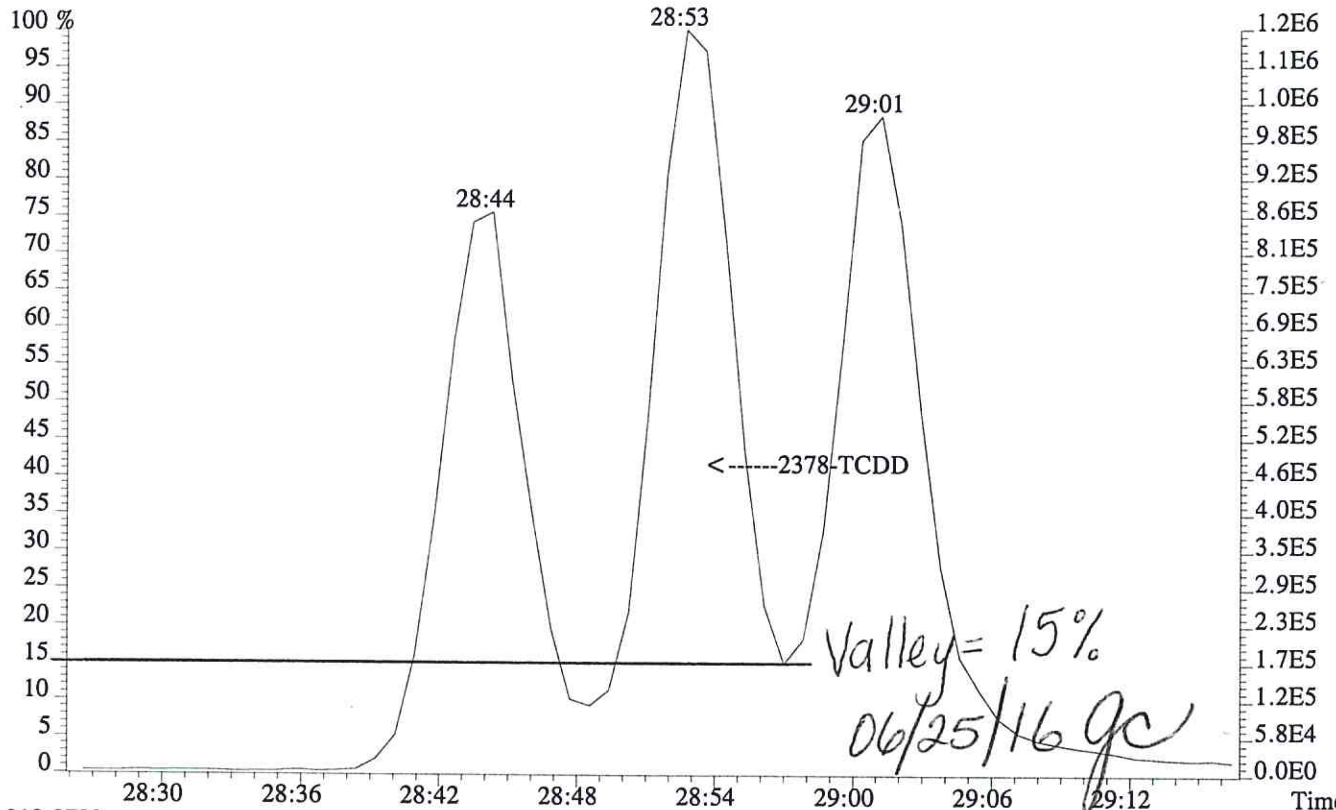
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: ______________ SDG No.:
ID: 0.25 (mm) Lab File ID: P603981
Date Analyzed: 25-JUN-2016
Time Analyzed: 09:17:10

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:42	30:05
TCDD	25:33	29:54
PeCDF	29:58	34:14
PeCDD	31:30	33:58
HxCDF	34:50	37:22
HxCDD	35:22	36:57
HpCDF	38:33	39:58
HpCDD	38:47	39:28

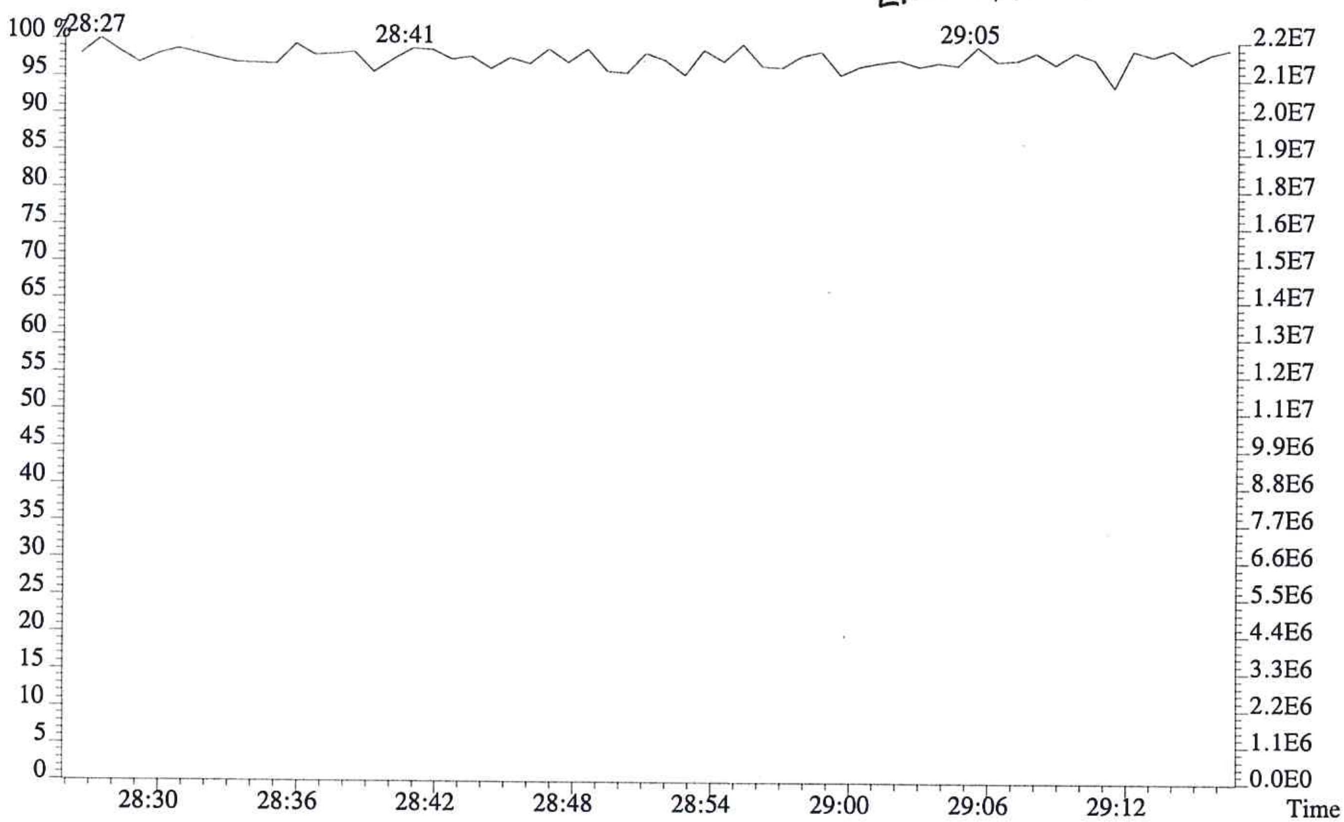
% Valley 2378-TCDD: 15 %

File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

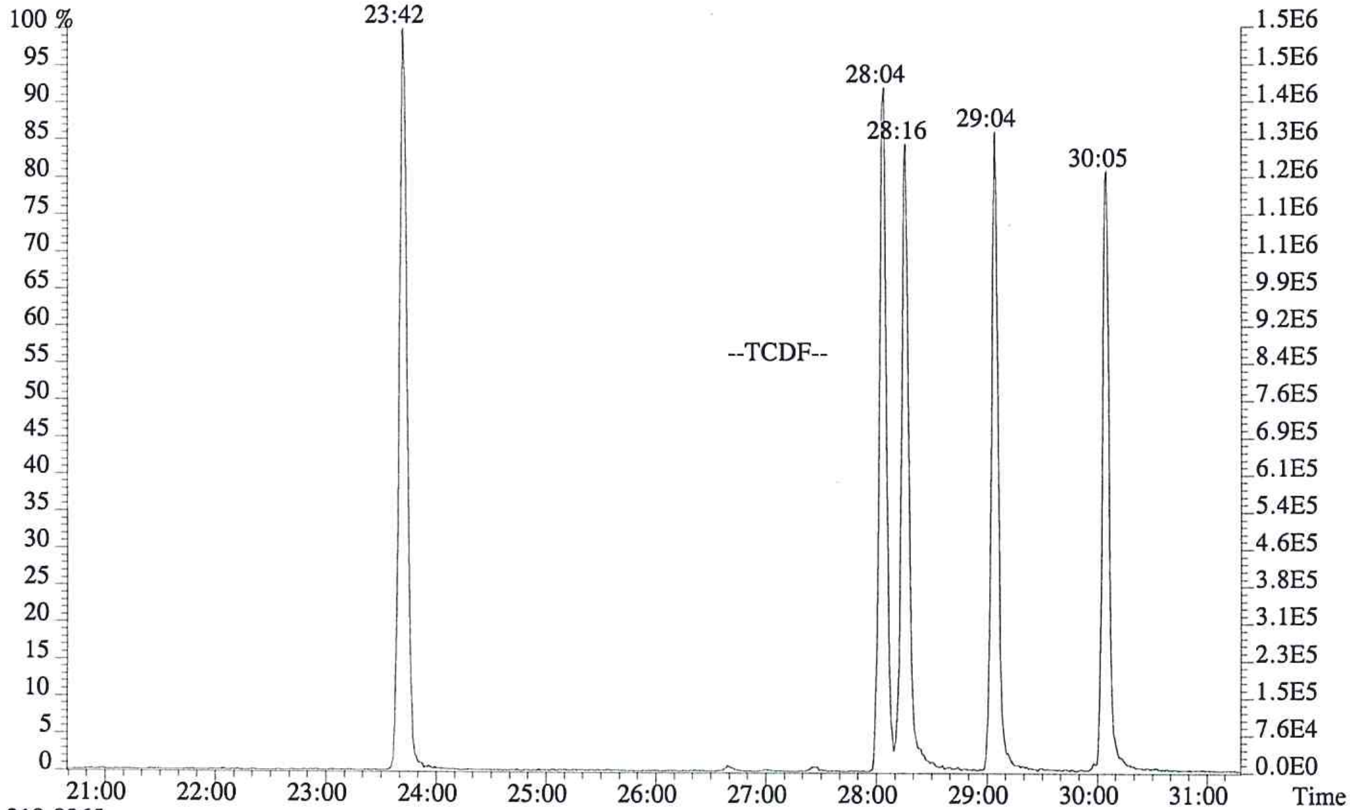


318.9792

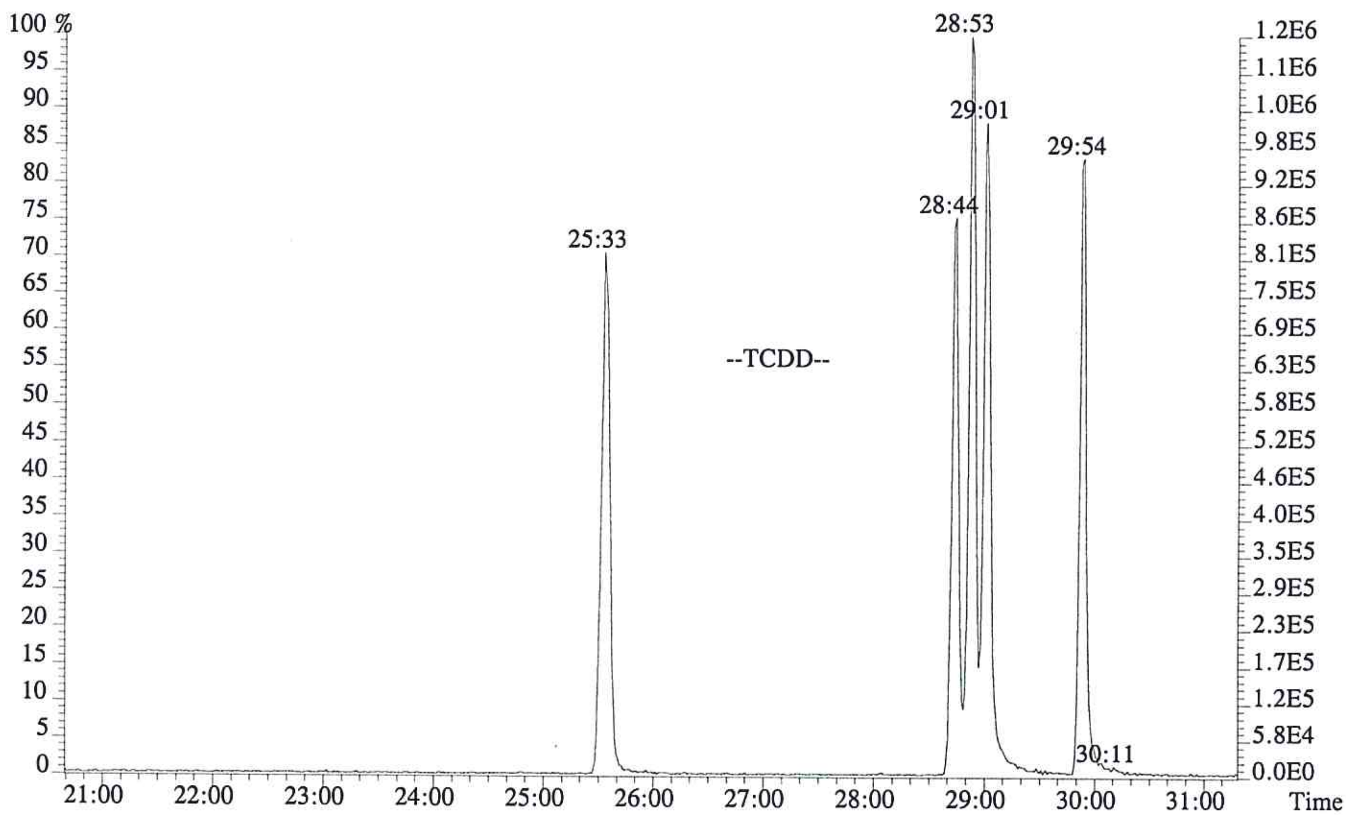
LKL 07/05/16



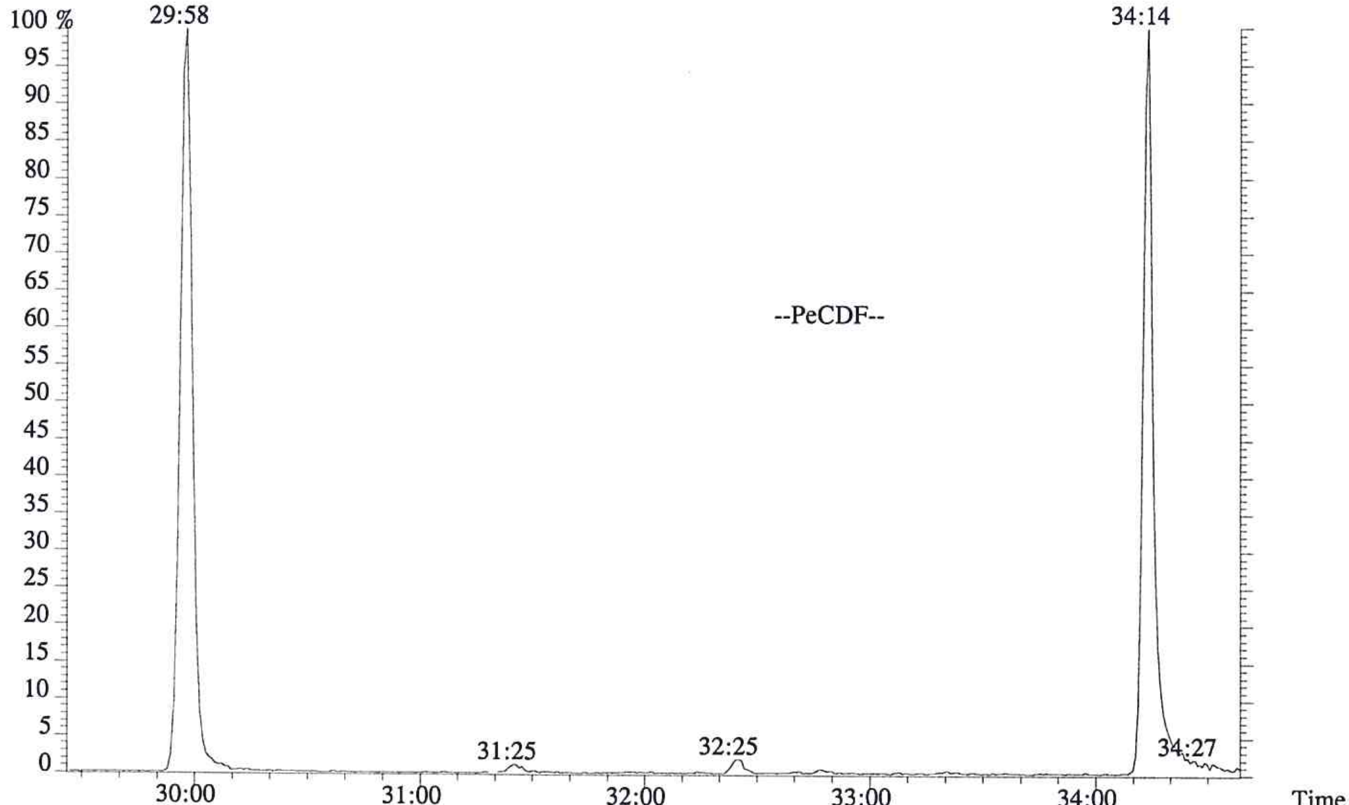
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



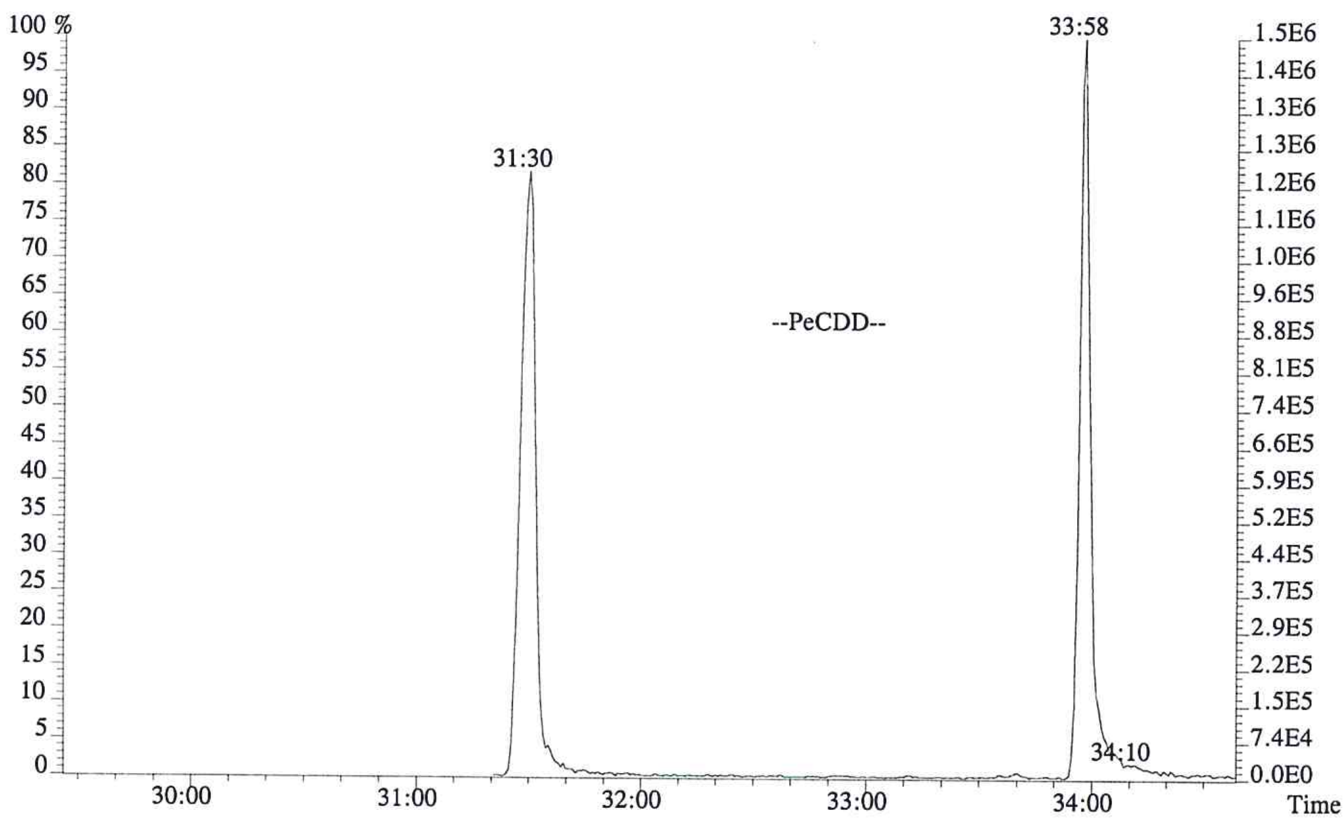
319.8965



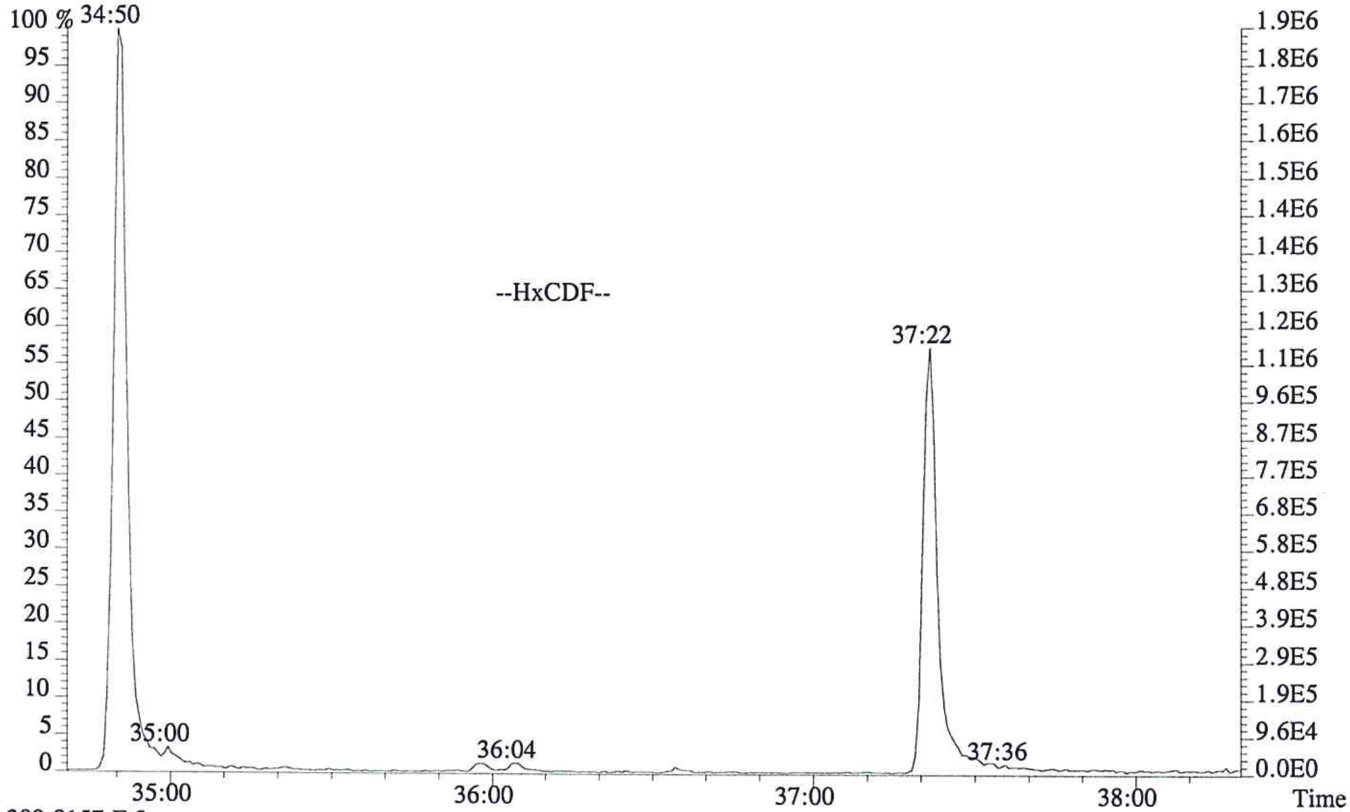
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



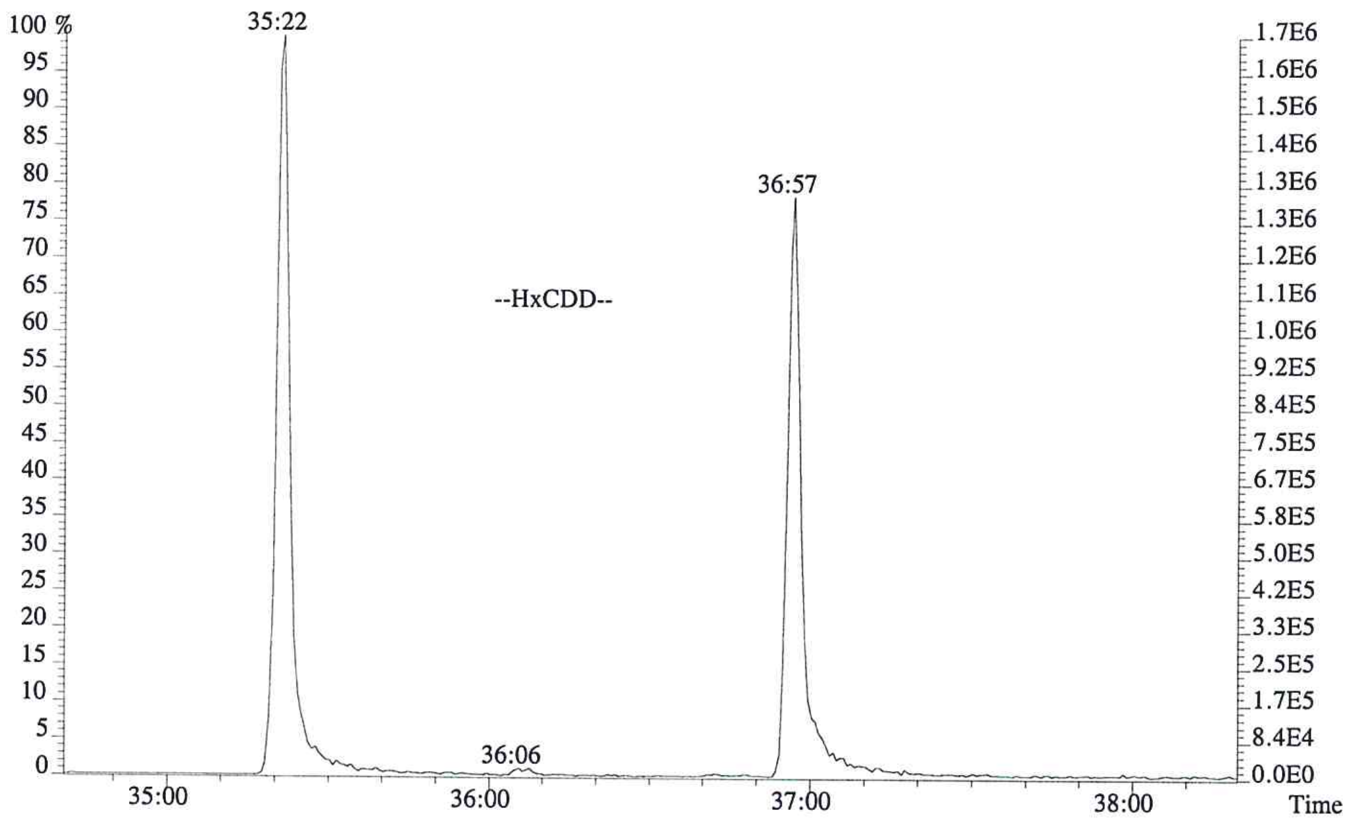
355.8546 F:2



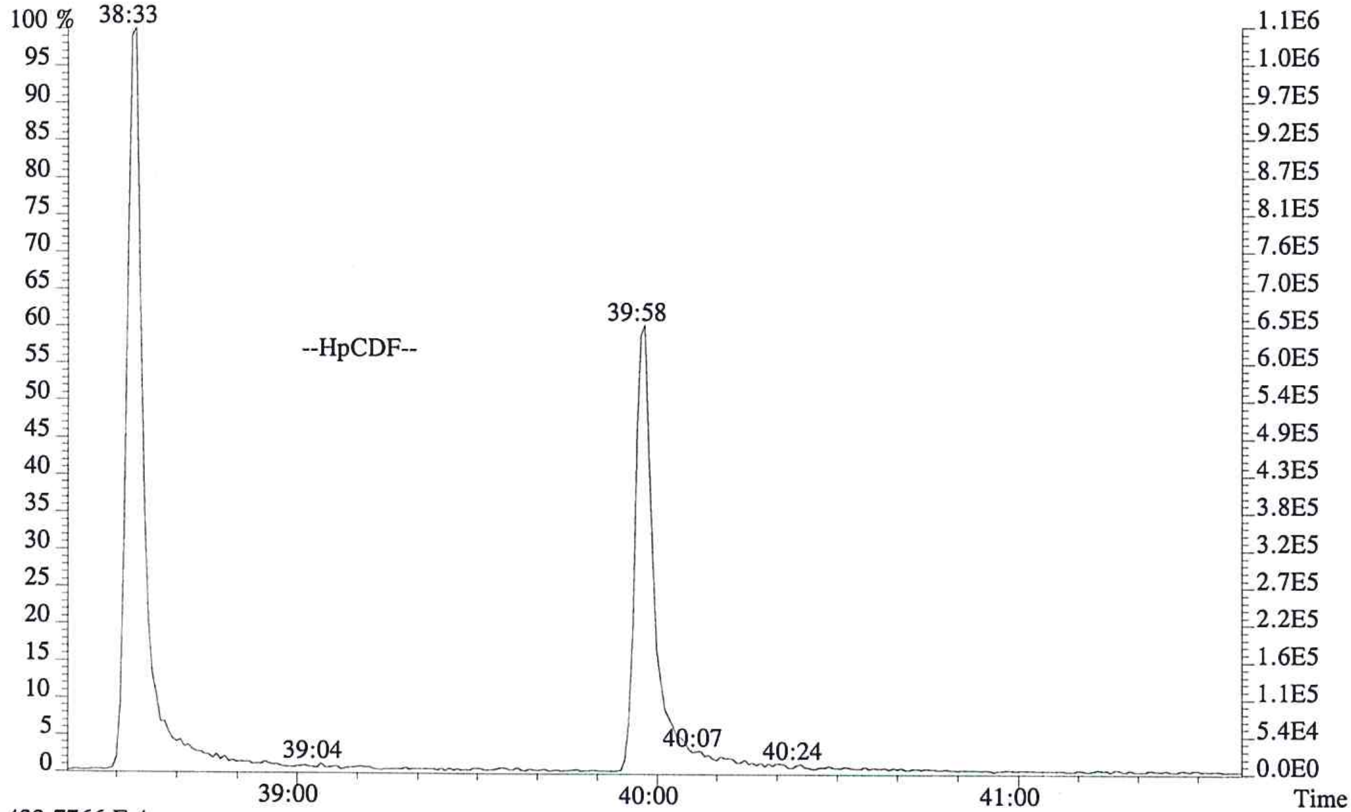
File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



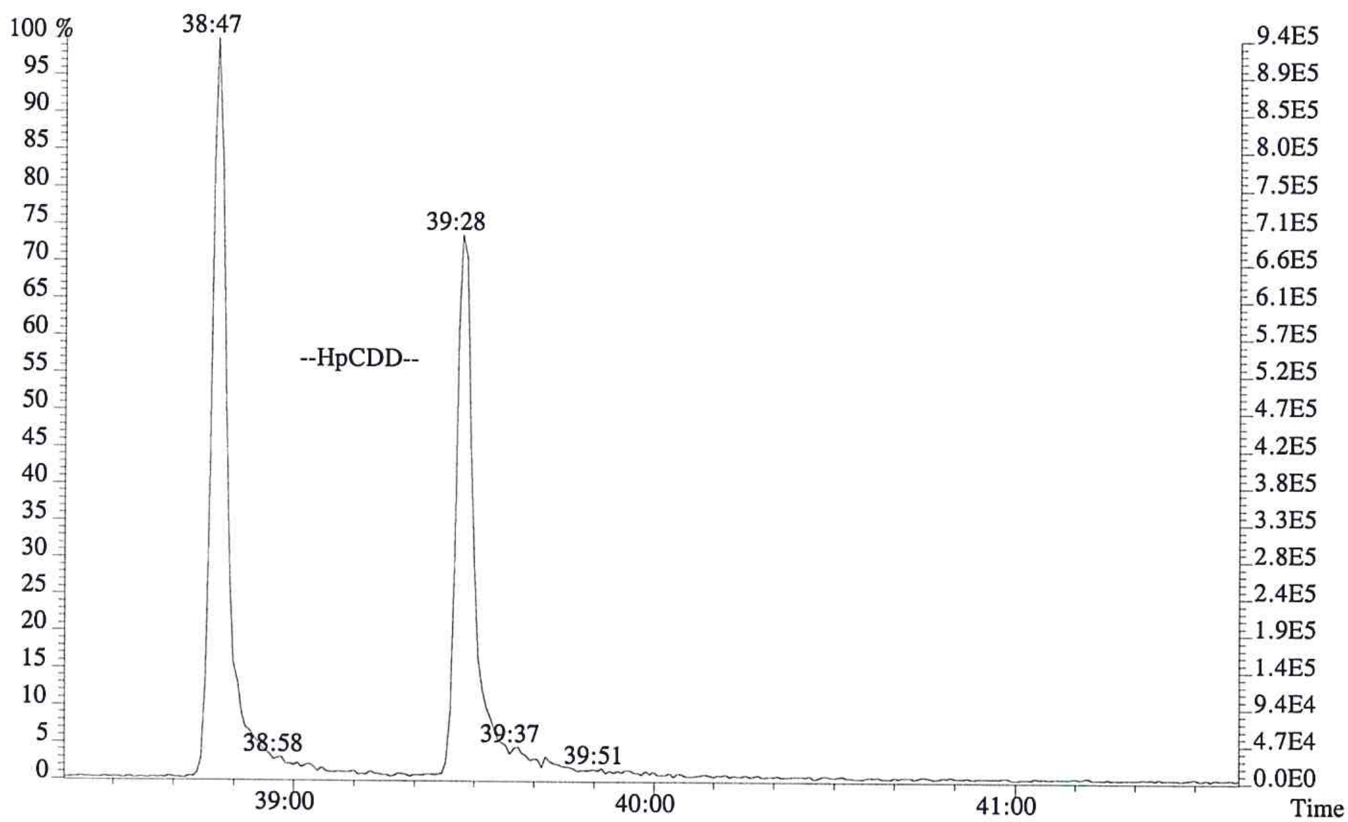
389.8157 F:3



File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



SPME
5DFA5
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16 Method: SPME
Init. Calib. Time.: 09:17

Target Analytes	RR/RRF CS1	CS2	CS3	CS4	CS5	RR/RRF	MEAN %RSD	QC LIMITS
2,3,7,8-TCDF	1.16	1.01	1.00	1.02	1.06	1.05	6.57	+/-20%
2,3,7,8-TCDD	0.95	0.91	0.97	0.97	0.98	0.96	2.86	+/-20%
2,3,4,7,8-PeCDF	0.89	0.91	0.93	0.95	0.96	0.93	3.18	+/-20%
13C-1,2,3,4-TCDF	1.31	1.44	1.07	1.32	1.49	1.33	12.37	+/-35%
13C-2,3,7,8-TCDF	1.27	1.24	1.29	1.30	1.31	1.28	1.98	+/-35%
13C-2,3,7,8-TCDD	0.91	0.90	0.94	0.94	0.95	0.93	2.27	+/-35%
13C-1,2,3,7,8-PeCDF	1.36	1.32	1.40	1.39	1.44	1.38	3.44	+/-35%
13C-2,3,4,7,8-PeCDF	1.35	1.32	1.38	1.37	1.43	1.37	2.94	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.87	0.84	0.89	0.87	0.89	0.87	2.35	+/-35%
37Cl-2,3,7,8-TCDD	0.88	0.92	0.96	0.96	1.01	0.94	5.24	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

SPME
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental   Contract No.:
Lab Code: ALSTX   Case No.:   TO No.:   SDG No.:
GC Column: DB-5MSUI   ID: 0.25(mm)   Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16   Method SPME
Init. Calib. Time.: 09:17

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO C1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.66	0.82	0.77	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.68	0.79	0.78	0.79	0.78		0.65-0.89
2,3,4,7,8-PeCDF	340/342	1.56	1.53	1.55	1.56	1.55		1.32-1.78
13C-1,2,3,4-TCDF	316/318	0.80	0.80	0.80	0.79	0.80		0.65-0.89
13C-2,3,7,8-TCDF	316/318	0.82	0.80	0.80	0.80	0.80		0.65-0.89
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.78	0.78	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.60	1.60	1.60	1.61		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.62	1.60	1.60	1.61	1.58		1.32-1.78
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.52	0.51	0.52	0.51		0.43-0.59
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.29	1.24	1.24	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

FORM VI-HR CDD-2

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173636

Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	1.659e+02	2.502e+02	0.66	yes	yes	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.262e+03	8.112e+02	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.471e+02	2.158e+02	0.68	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	3.924e+04	4.815e+04	0.82	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.787e+04	3.555e+04	1.63	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	5.732e+04	3.540e+04	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.788e+04	3.501e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.003e+04	4.991e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	2.727e+04	3.509e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.030e+04	3.842e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.373e+04	2.692e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	3.012e+02				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173636

Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.89e+04	1.68e+03	1.7e+01	4.53e+04	4.50e+03	1.0e+01
3	2,3,4,7,8-PeCDF	2.34e+05	1.24e+03	1.9e+02	1.53e+05	1.94e+03	7.9e+01
11	2,3,7,8-TCDD	2.46e+04	1.07e+03	2.3e+01	3.66e+04	1.37e+03	2.7e+01
18	13C-2,3,7,8-TCDF	6.69e+06	6.48e+03	1.0e+03	8.21e+06	3.58e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	9.80e+06	1.39e+03	7.1e+03	6.08e+06	1.25e+04	4.8e+02
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.39e+03	7.6e+03	6.48e+06	1.25e+04	5.2e+02
24	13C-1,2,3,7,8,9-HxCDF	3.21e+06	1.12e+03	2.9e+03	6.25e+06	1.78e+03	3.5e+03
26	13C-1,2,3,4-TCDF	6.44e+06	6.48e+03	9.9e+02	8.07e+06	3.58e+03	2.3e+03
27	13C-2,3,7,8-TCDD	4.87e+06	9.76e+03	5.0e+02	6.17e+06	4.64e+03	1.3e+03
33	13C-1,2,3,4-TCDD	5.55e+06	9.76e+03	5.7e+02	7.02e+06	4.64e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	2.00e+03	2.9e+03	4.65e+06	1.55e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	5.73e+04	3.00e+03	1.9e+01			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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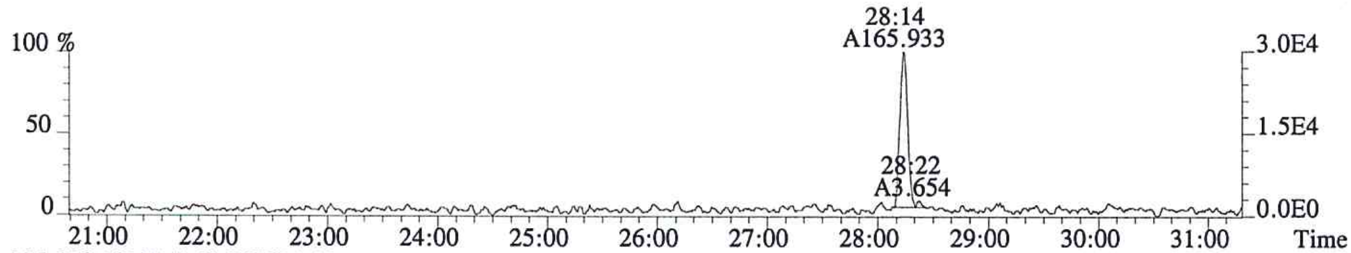
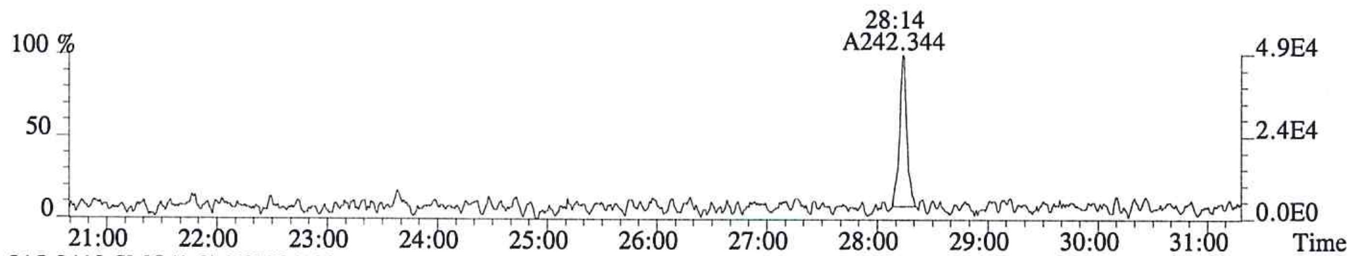
www.alsglobal.com

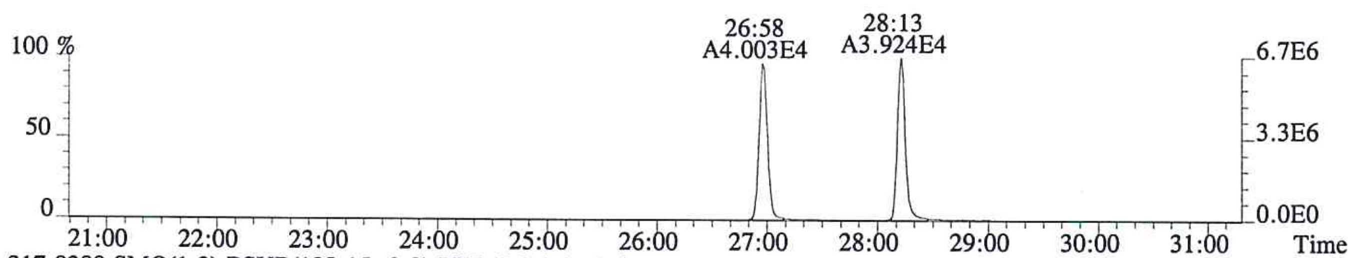
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



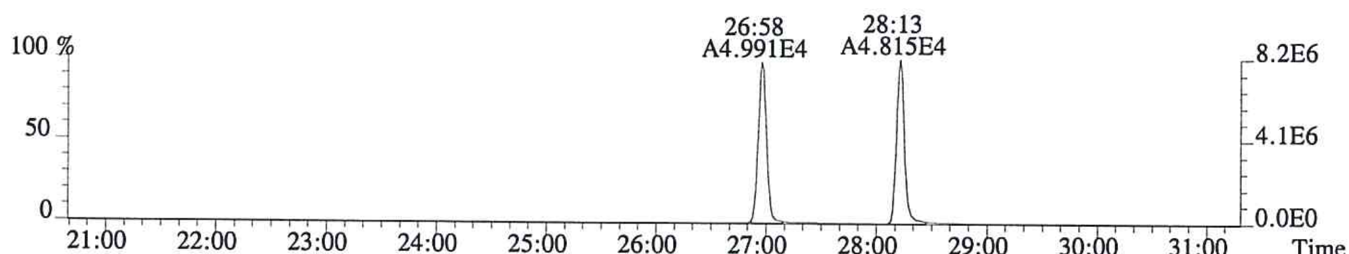
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



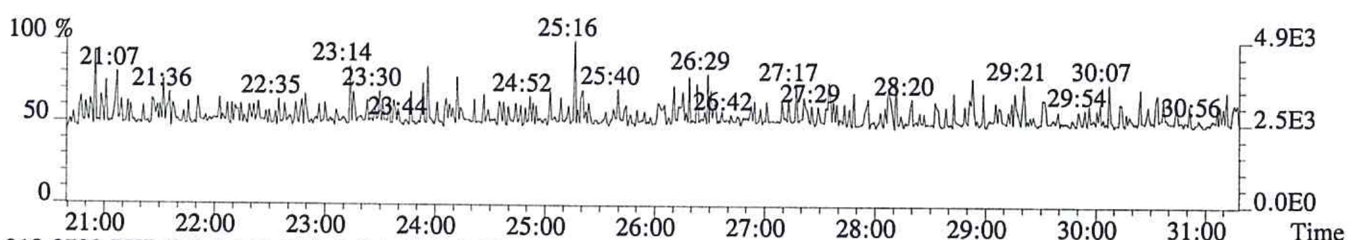
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6484.0,1.00%,F,T)



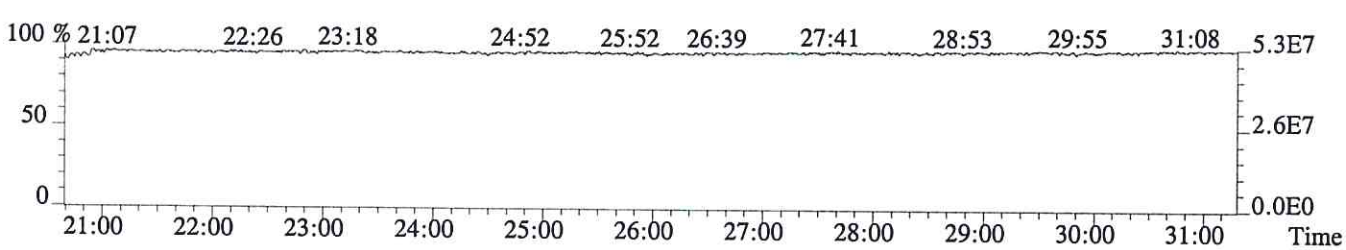
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



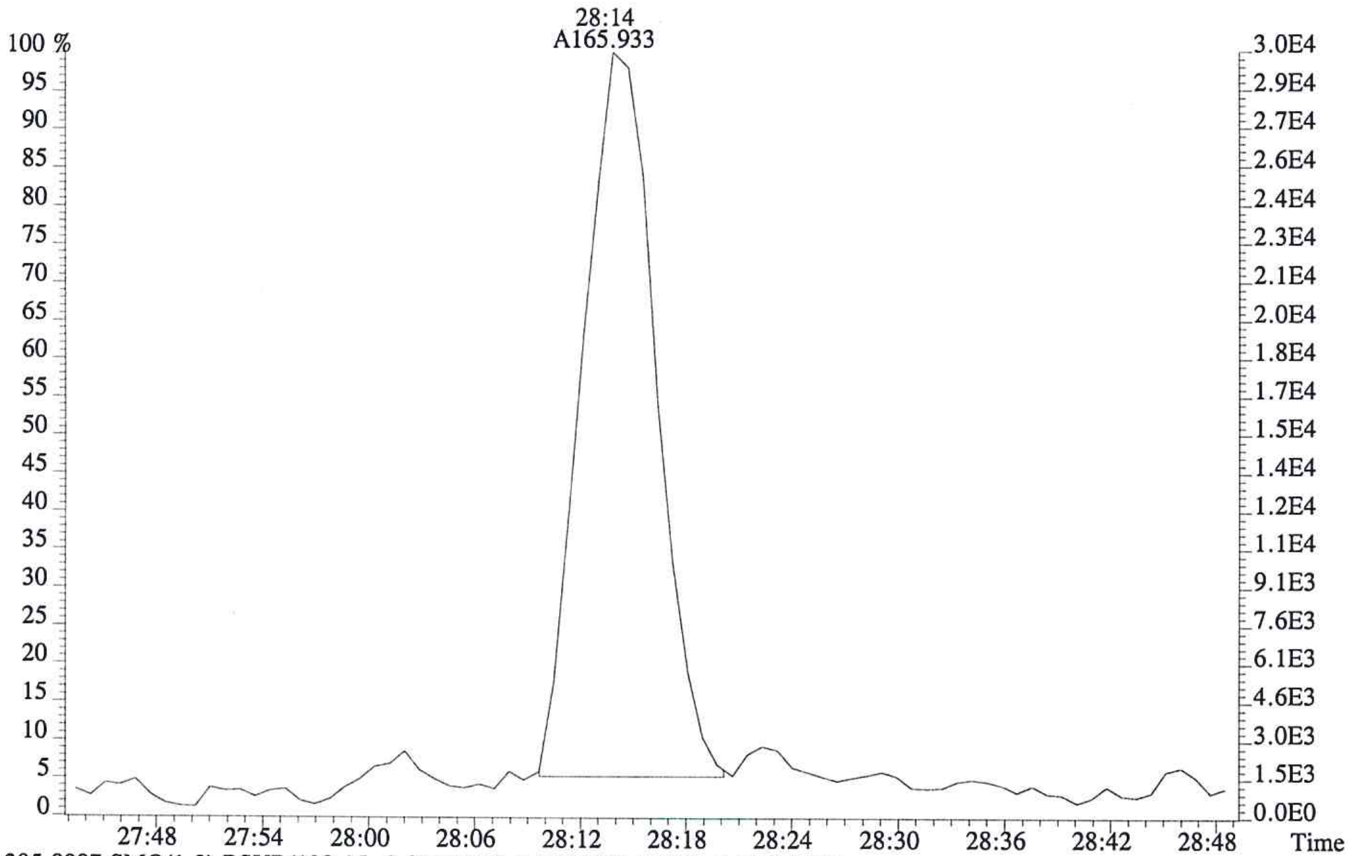
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



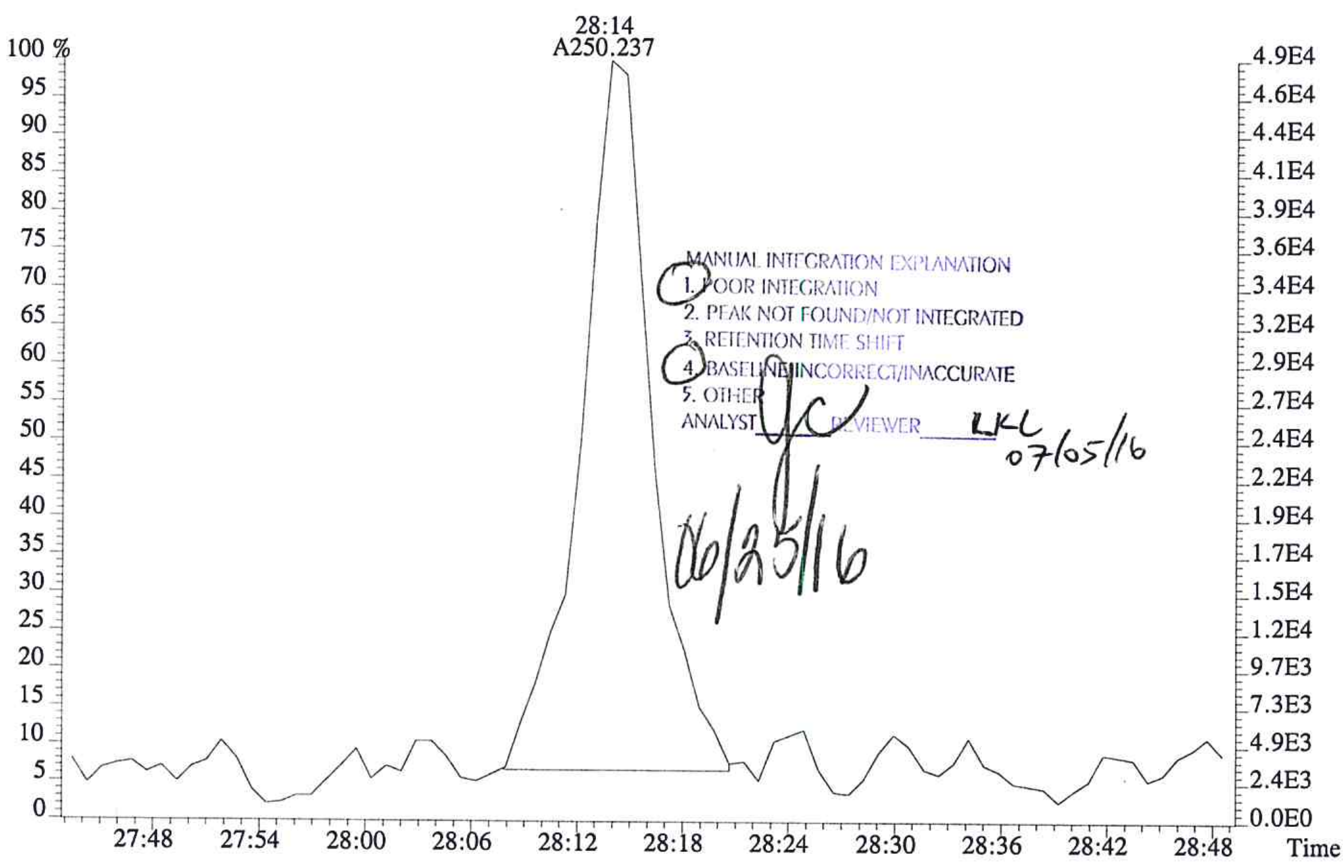
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)

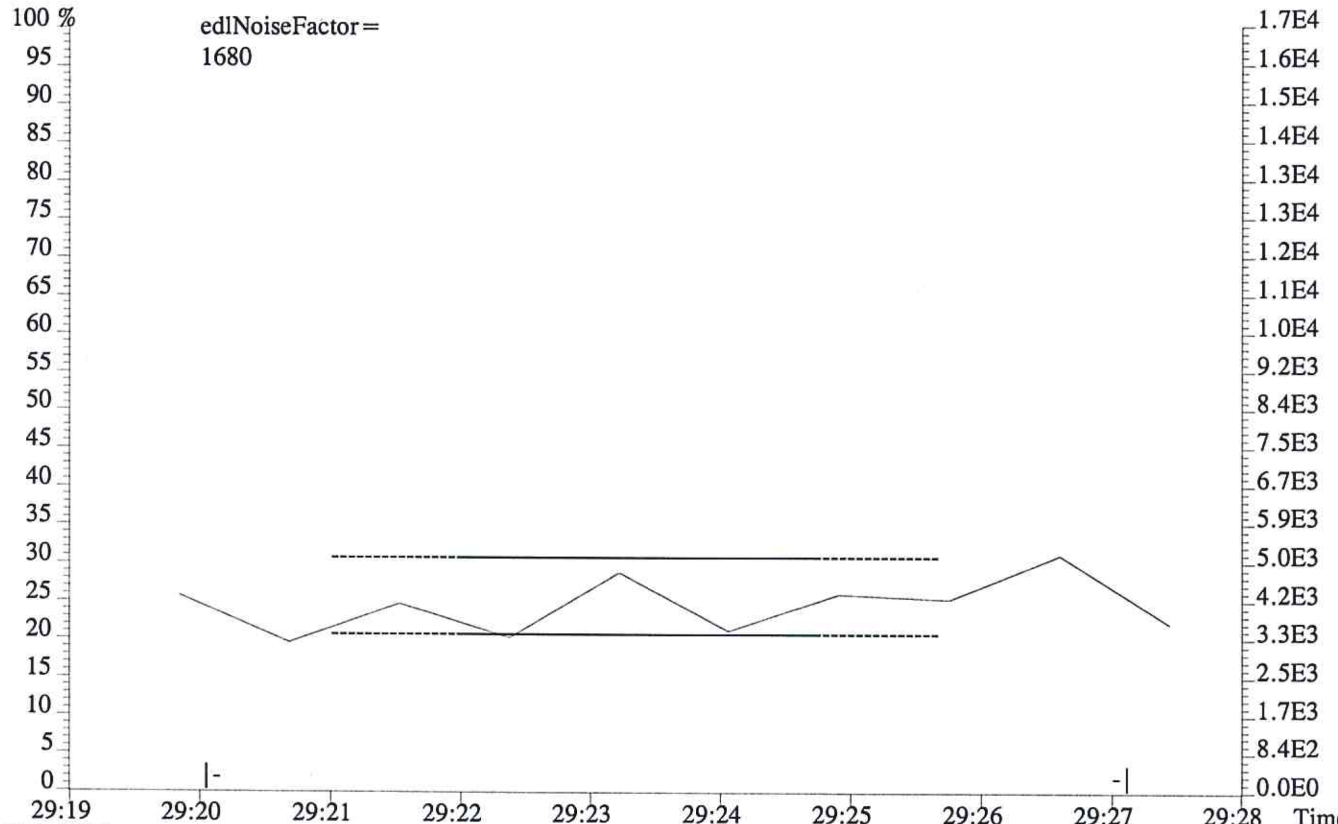


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)

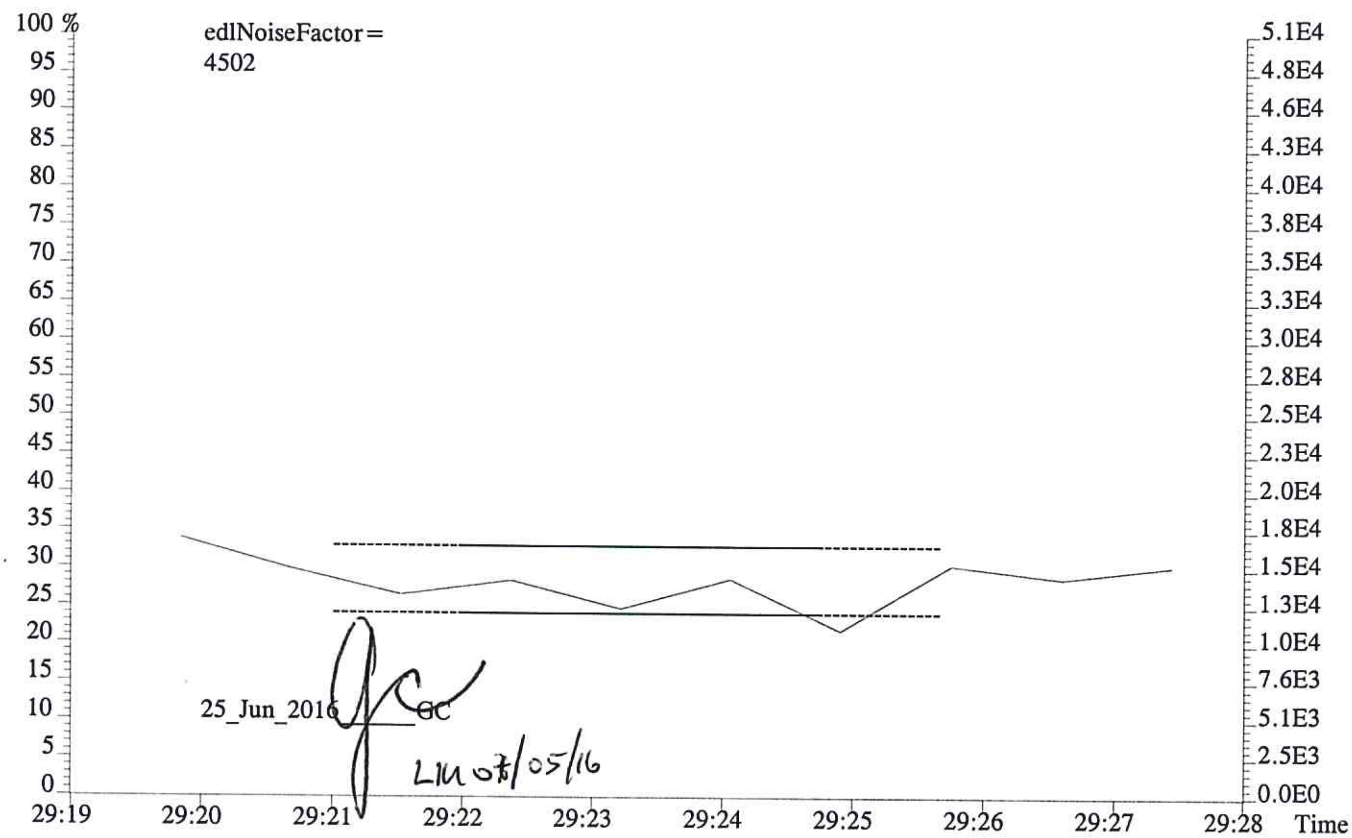


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER LKL 07/05/16
06/25/16

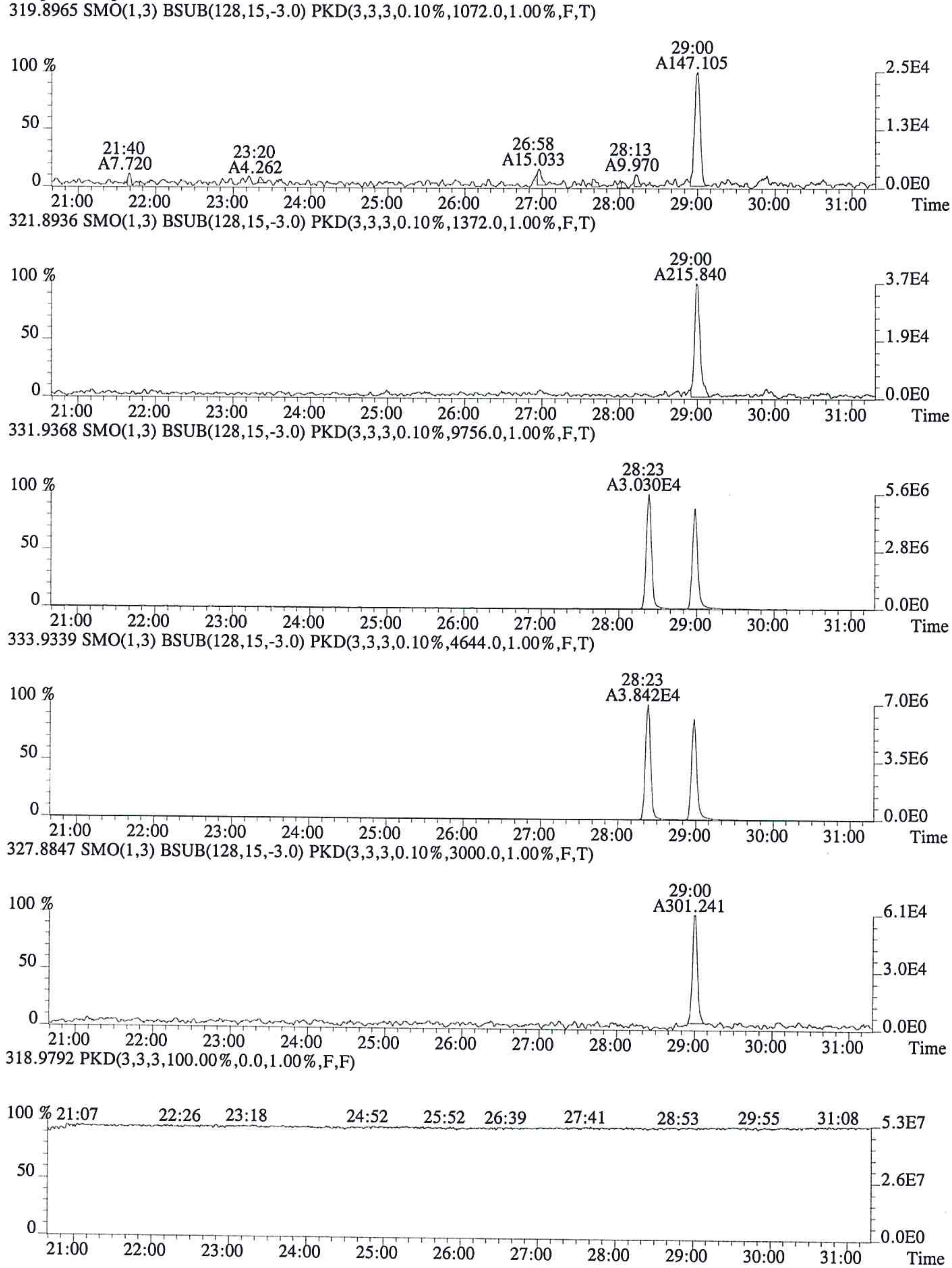
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016



305.8987

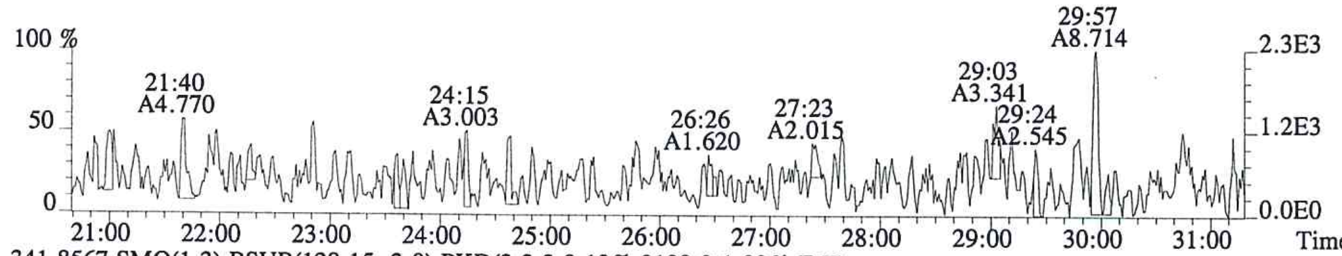


File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

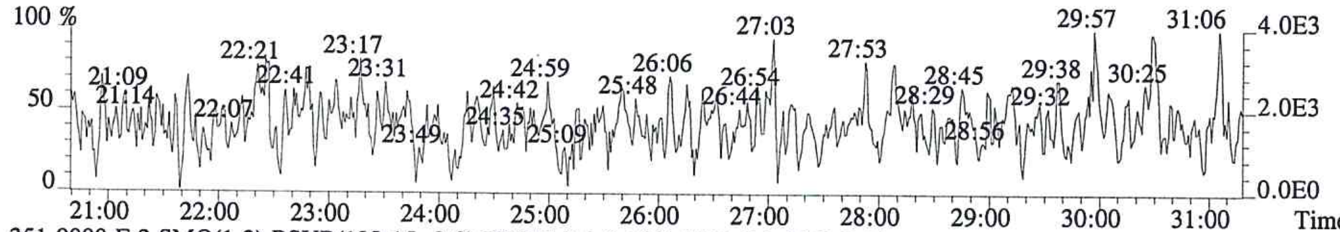


File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

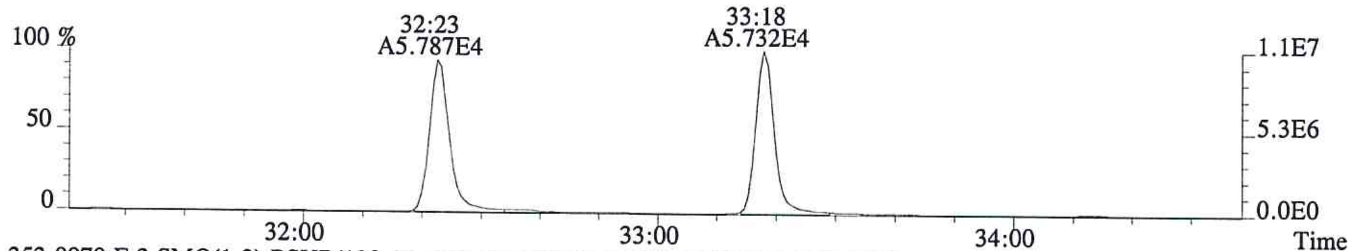
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



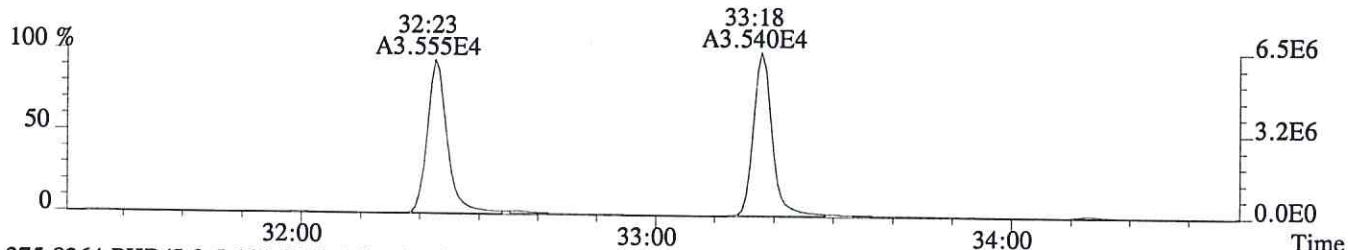
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



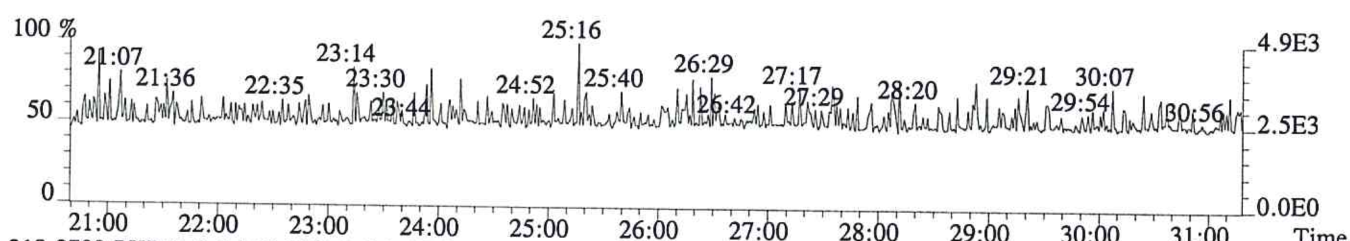
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



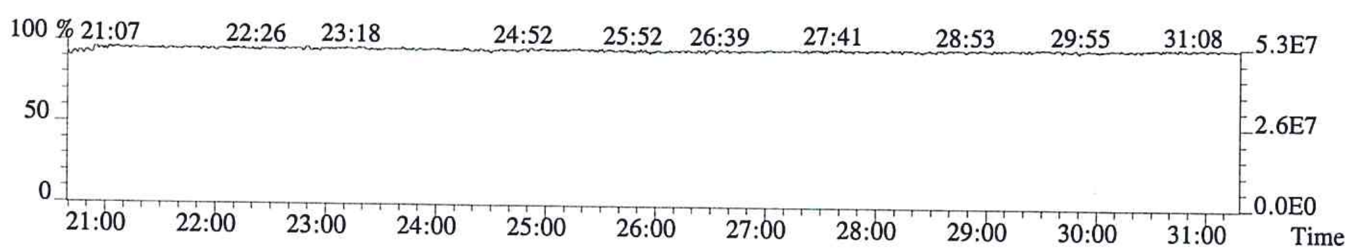
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



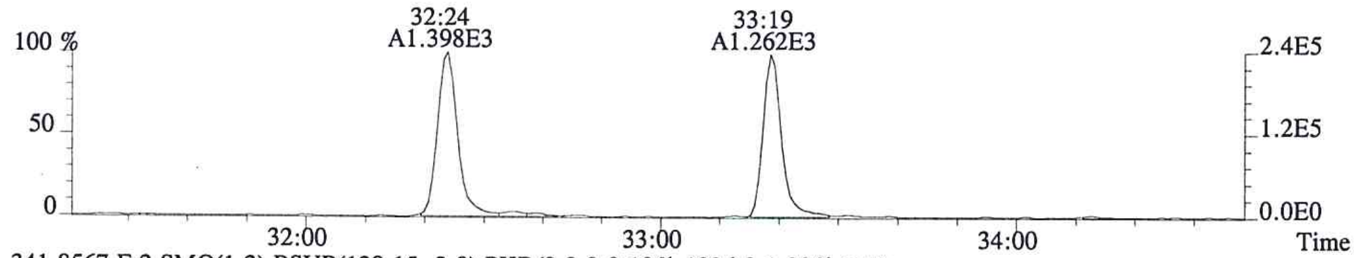
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



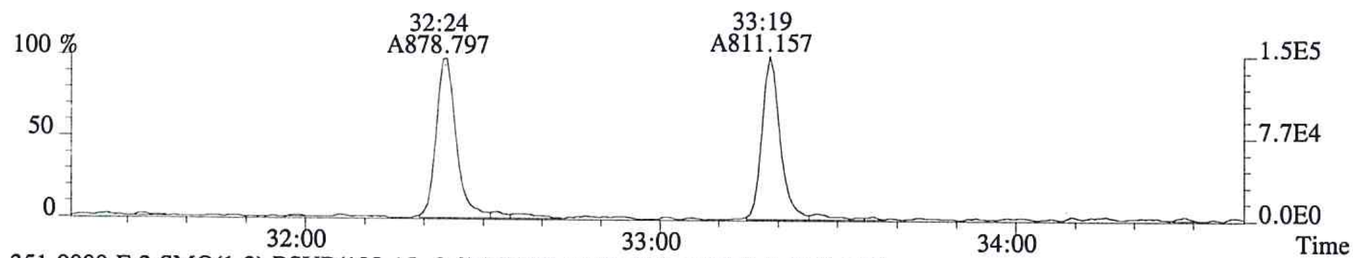
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



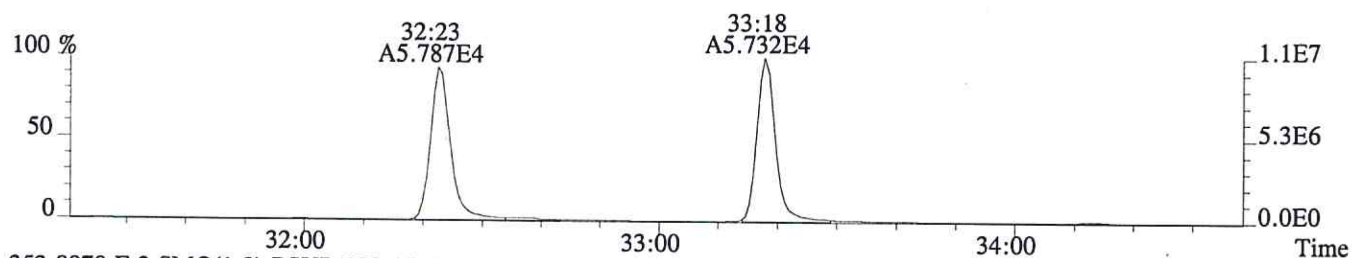
File:P603982 #1-298 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



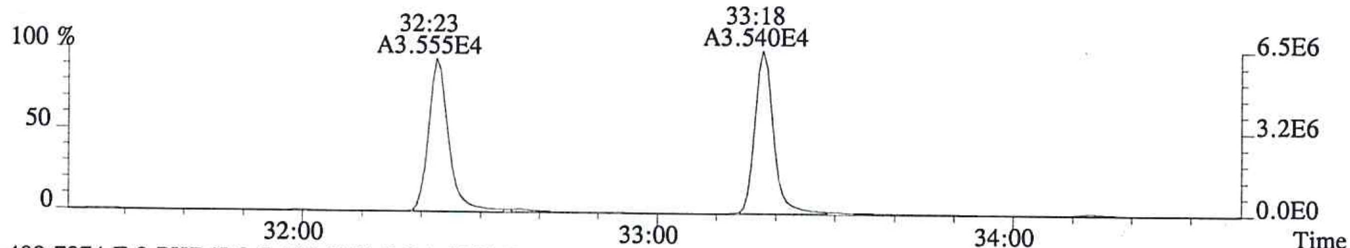
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



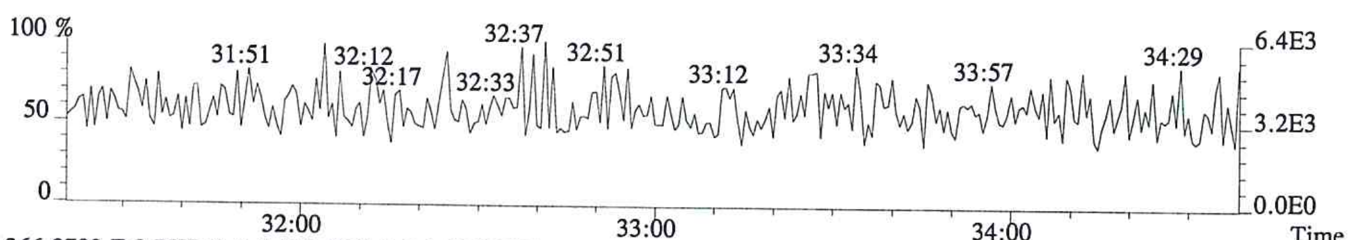
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



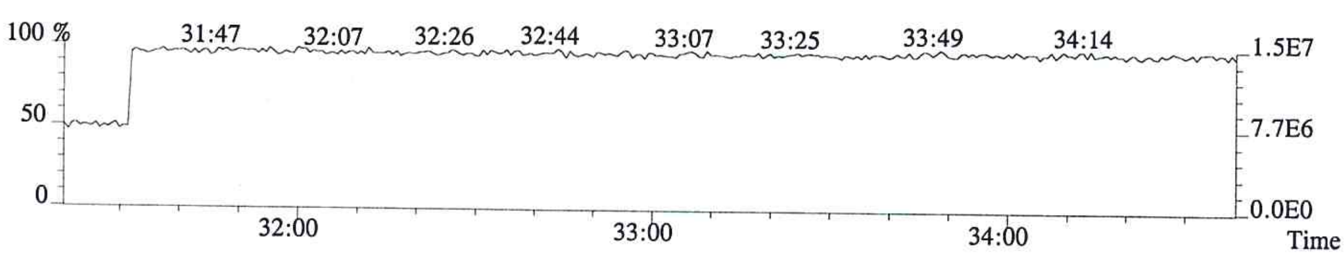
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



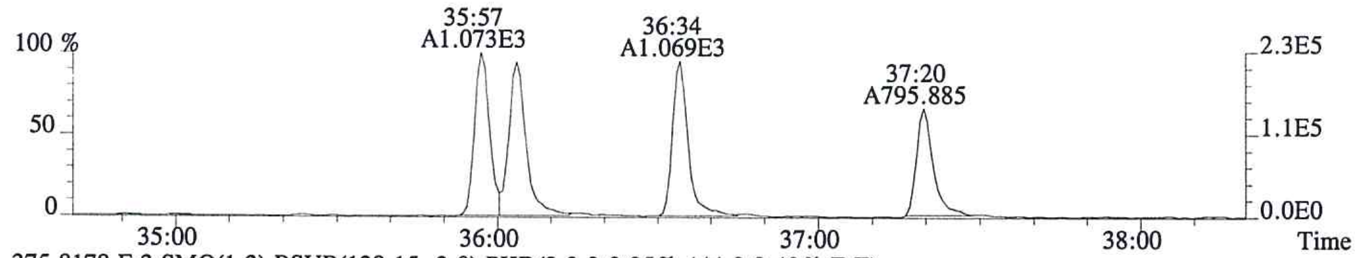
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



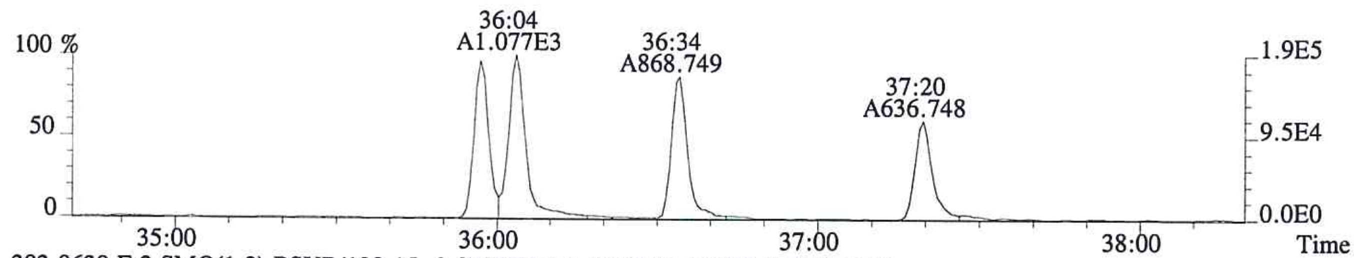
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



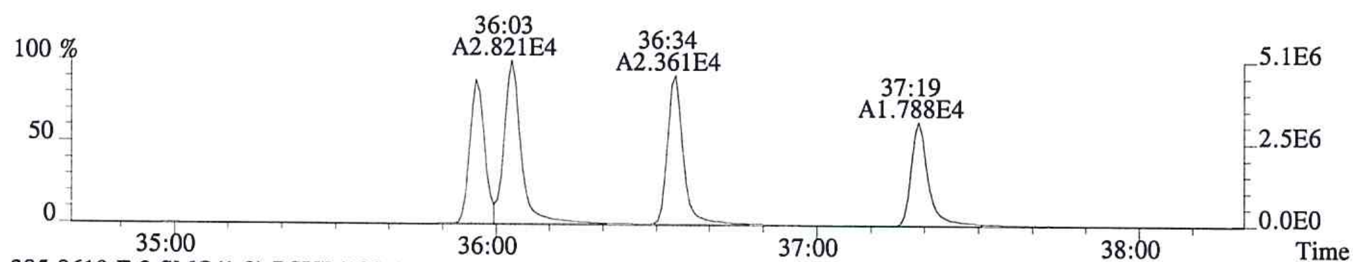
File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



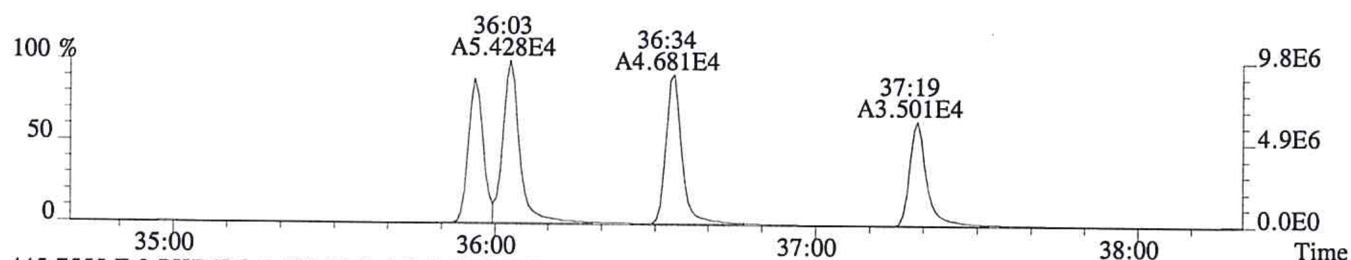
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



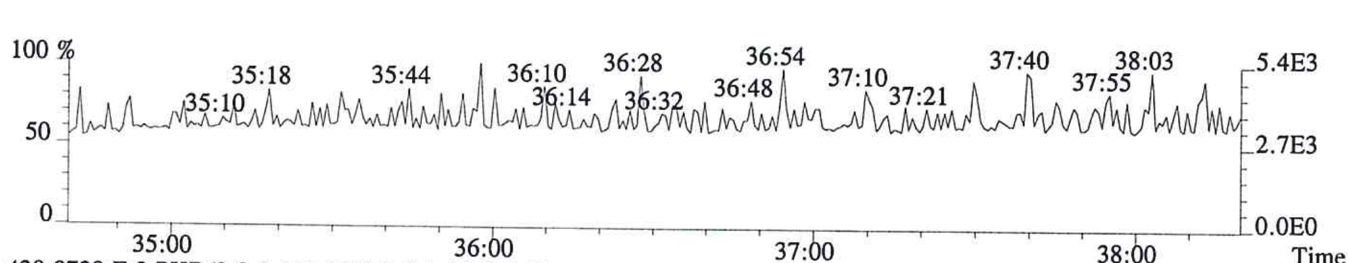
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



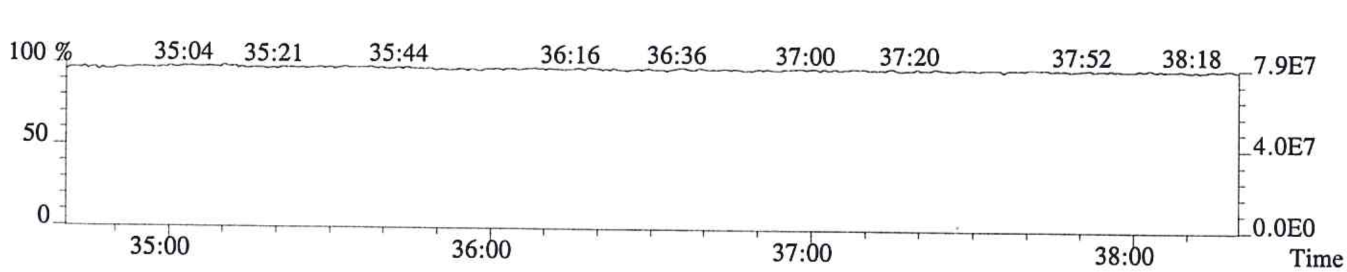
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



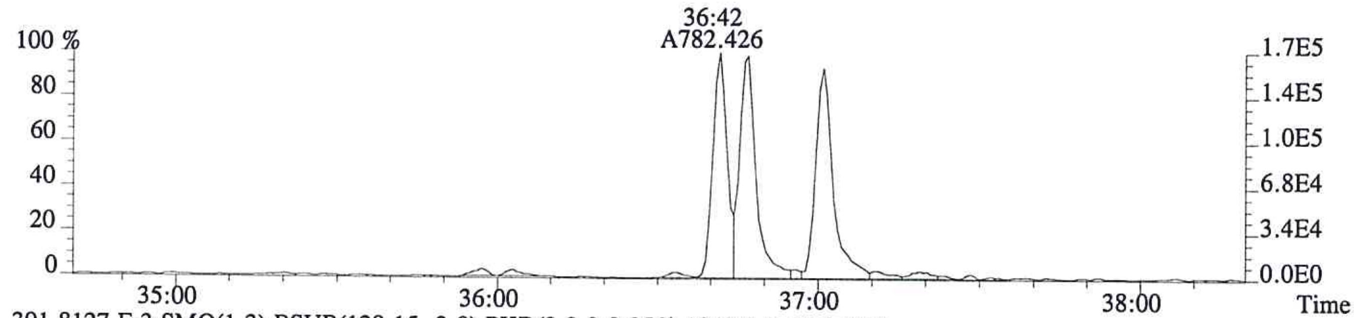
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



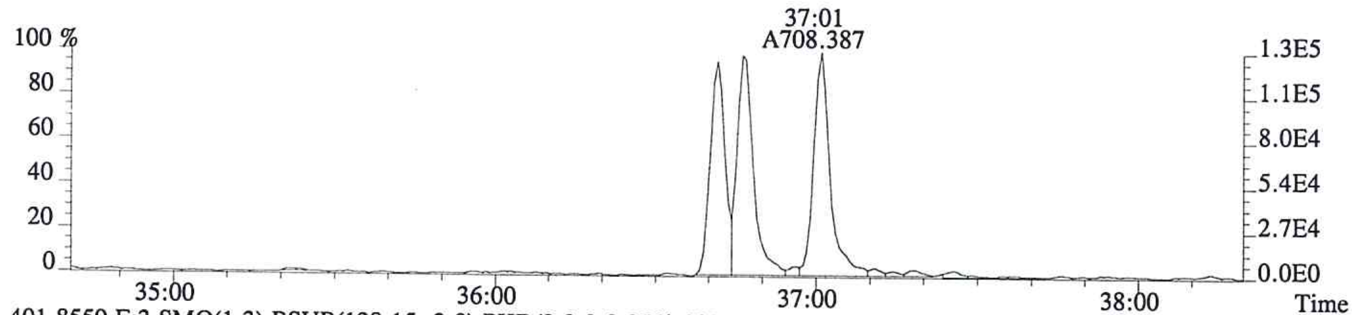
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



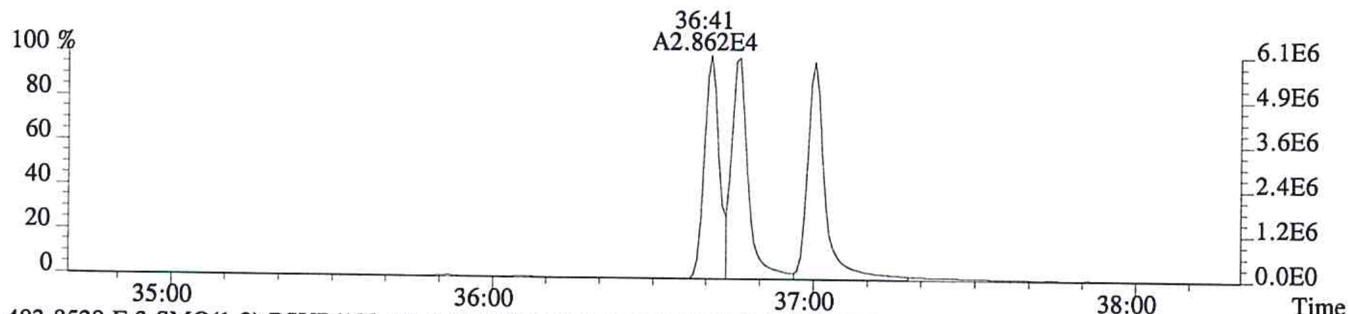
File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



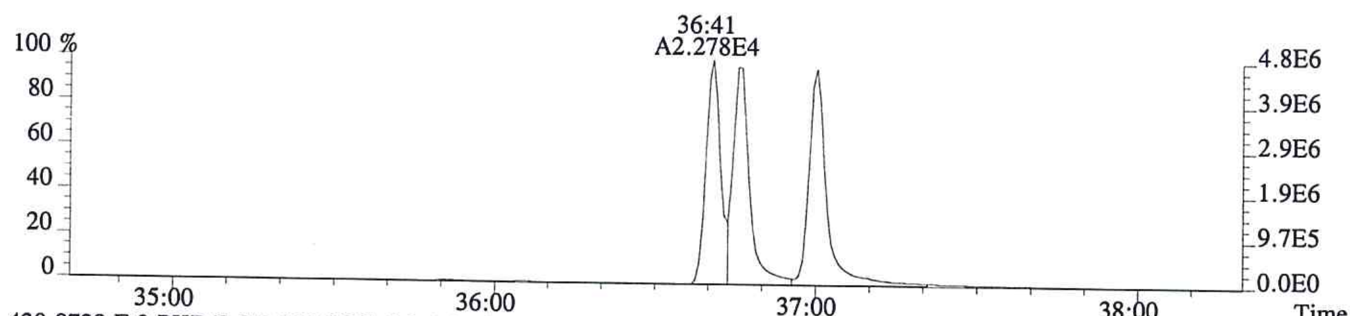
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



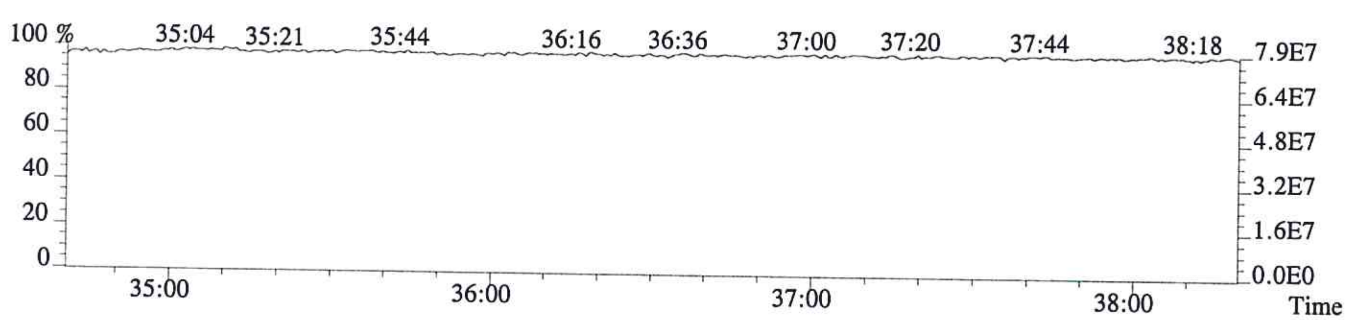
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	6.799e+02	8.314e+02	0.82	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.821e+03	3.158e+03	1.53	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:01	5.343e+02	6.795e+02	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	3.694e+04	4.596e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.402e+04	3.368e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	5.416e+04	3.394e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.659e+04	3.192e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.274e+04	5.355e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	2.625e+04	3.404e+04	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	2.934e+04	3.730e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:01	3.239e+04	2.513e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.225e+03				no	0.945

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.17e+05	1.48e+03	7.9e+01	1.52e+05	4.36e+03	3.5e+01
3	2,3,4,7,8-PeCDF	8.88e+05	2.05e+03	4.3e+02	5.85e+05	3.36e+03	1.7e+02
11	2,3,7,8-TCDD	9.48e+04	1.46e+03	6.5e+01	1.18e+05	1.44e+03	8.2e+01
18	13C-2,3,7,8-TCDF	6.40e+06	6.69e+03	9.6e+02	7.94e+06	4.12e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.08e+06	1.90e+04	4.8e+02	5.70e+06	9.55e+03	6.0e+02
20	13C-2,3,4,7,8-PeCDF	9.94e+06	1.90e+04	5.2e+02	6.21e+06	9.55e+03	6.5e+02
24	13C-1,2,3,7,8,9-HxCDF	2.98e+06	1.04e+03	2.9e+03	5.77e+06	2.19e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.93e+06	6.69e+03	1.0e+03	8.59e+06	4.12e+03	2.1e+03
27	13C-2,3,7,8-TCDD	4.74e+06	9.28e+03	5.1e+02	6.17e+06	3.62e+03	1.7e+03
33	13C-1,2,3,4-TCDD	5.42e+06	9.28e+03	5.8e+02	6.85e+06	3.62e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.54e+06	2.31e+03	2.4e+03	4.38e+06	1.60e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.19e+05	2.42e+03	9.0e+01			

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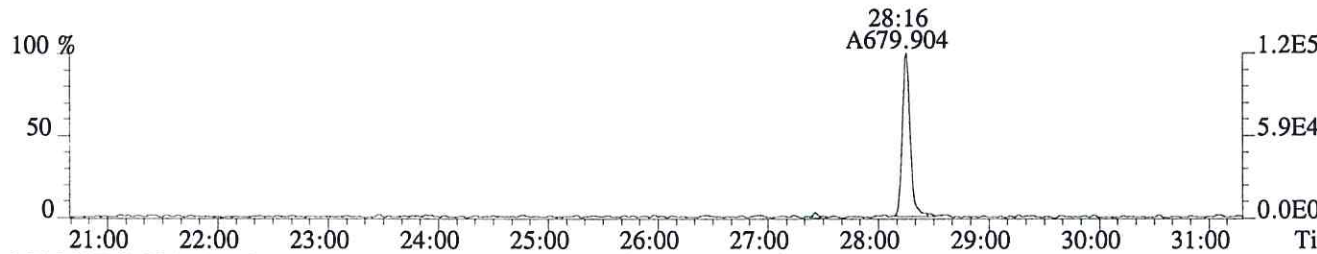
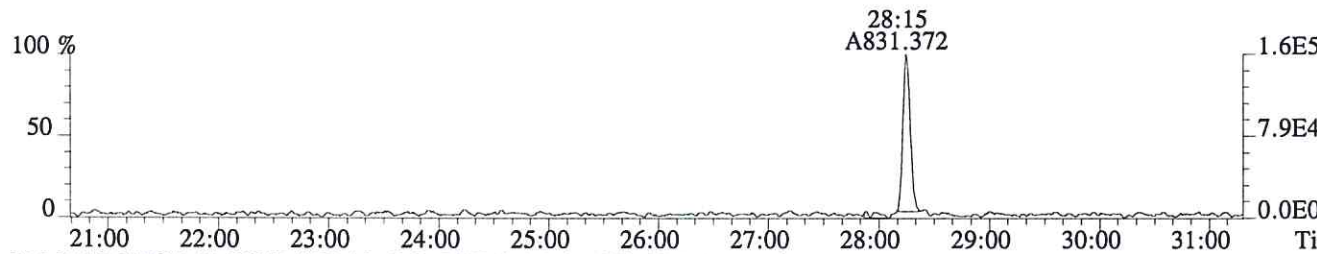
www.alsglobal.com

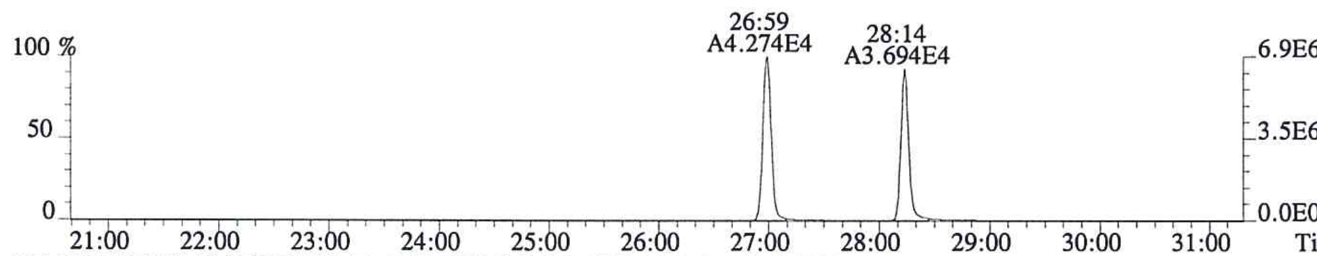
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



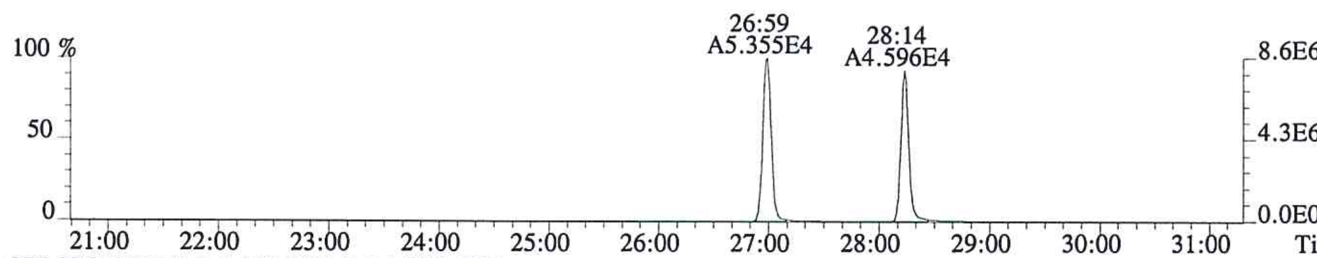
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



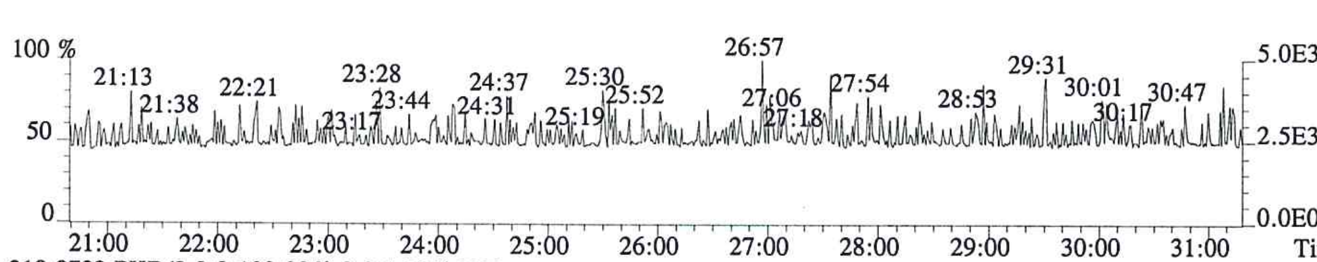
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6688.0,1.00%,F,T)



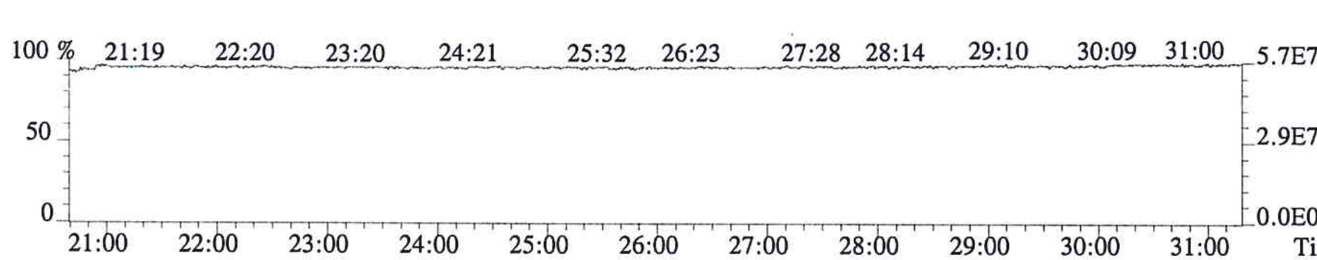
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



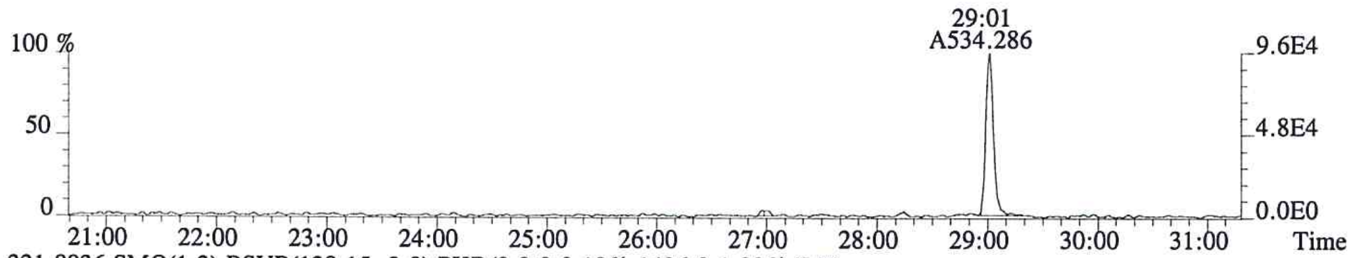
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



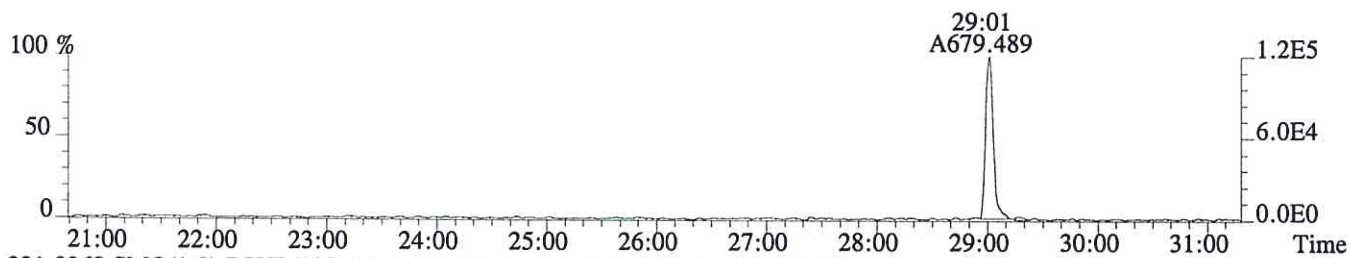
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



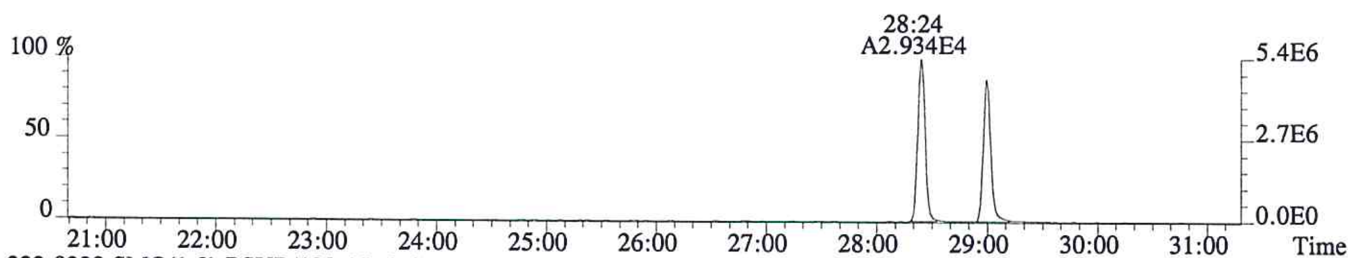
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



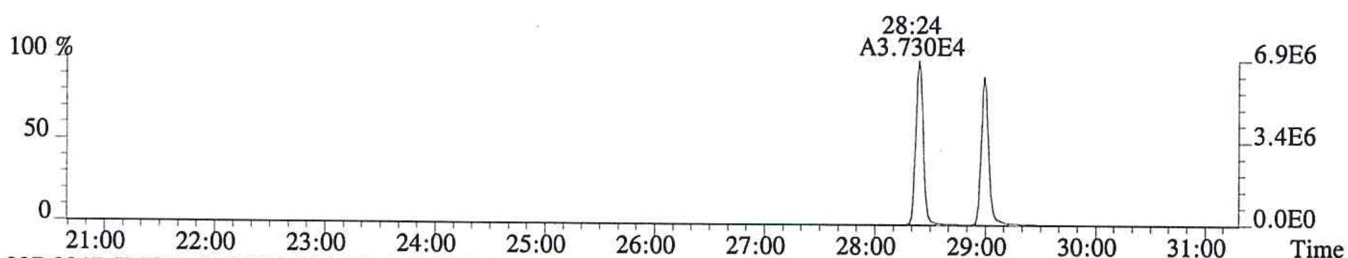
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



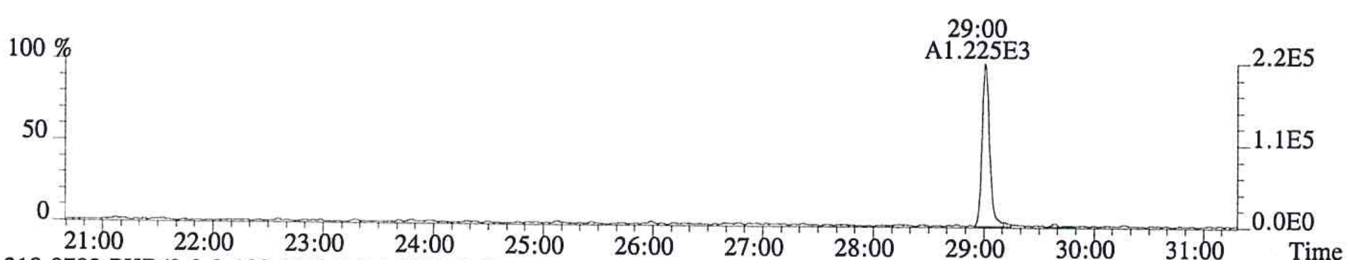
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9284.0,1.00%,F,T)



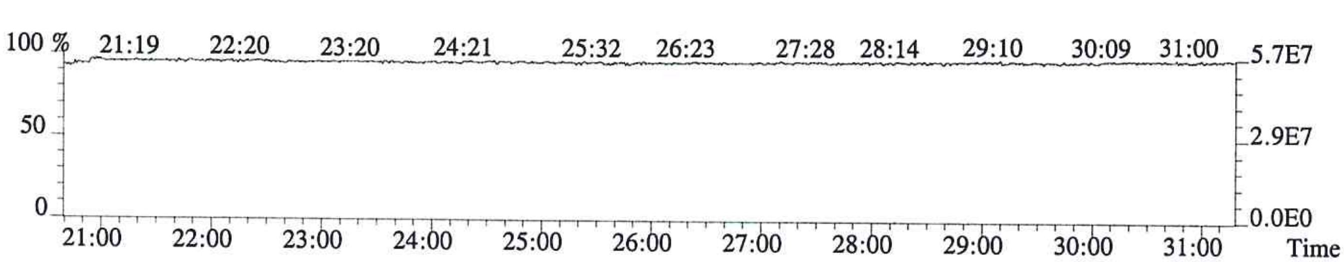
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3624.0,1.00%,F,T)



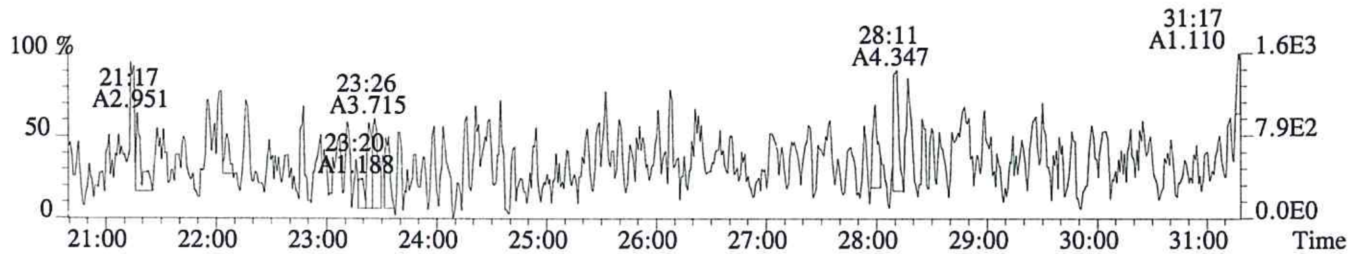
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



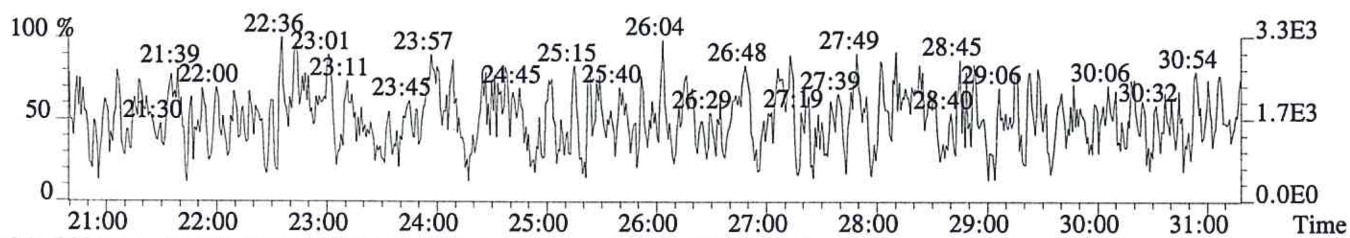
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



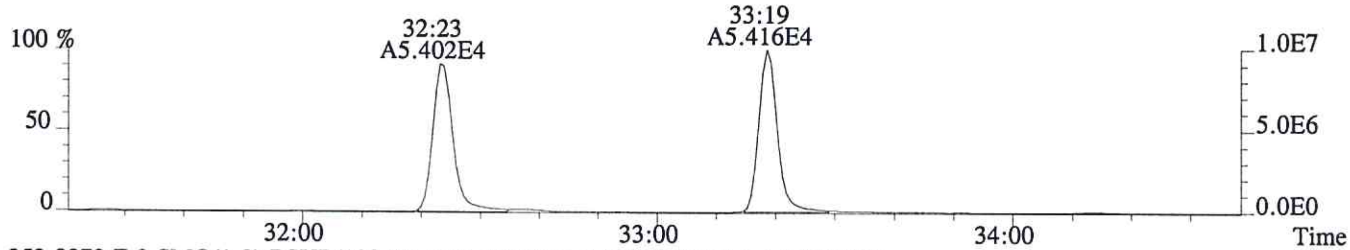
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



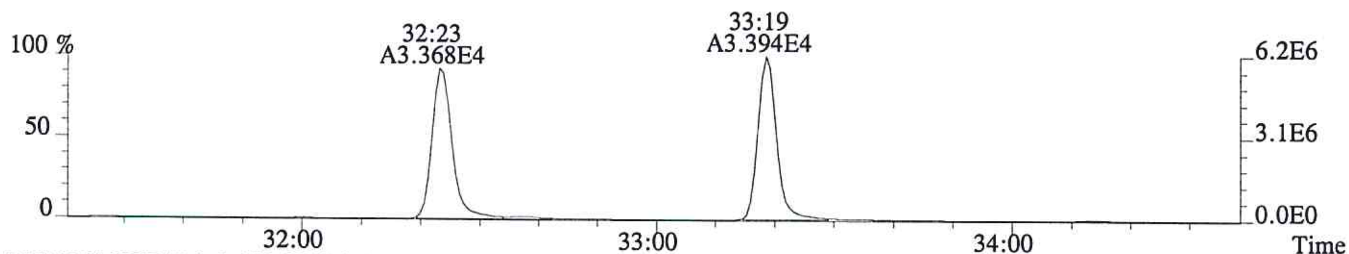
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2208.0,1.00%,F,T)



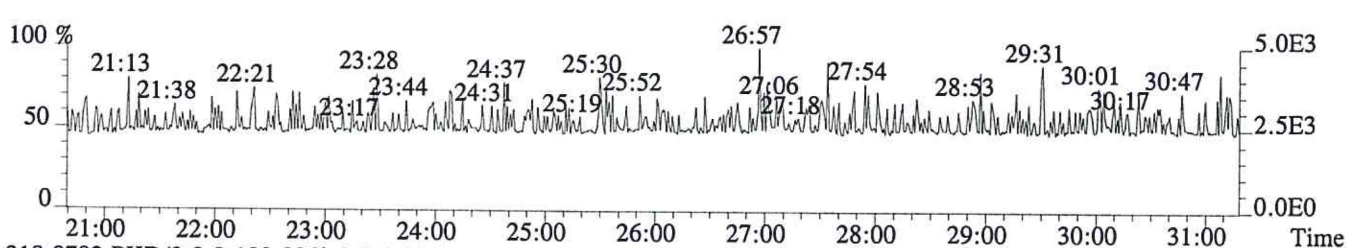
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19044.0,1.00%,F,T)



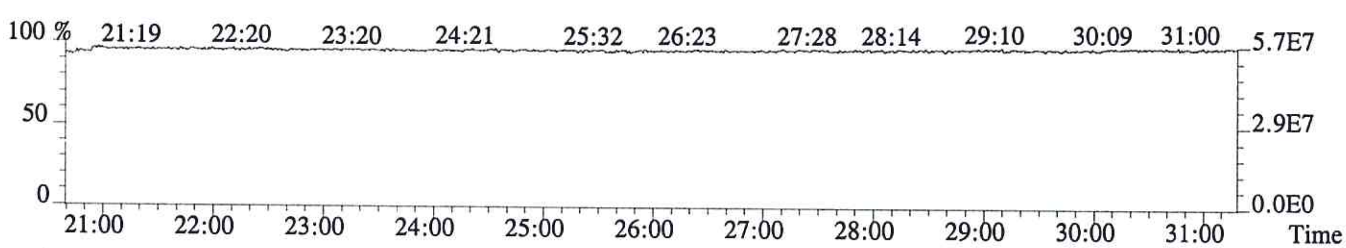
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9552.0,1.00%,F,T)



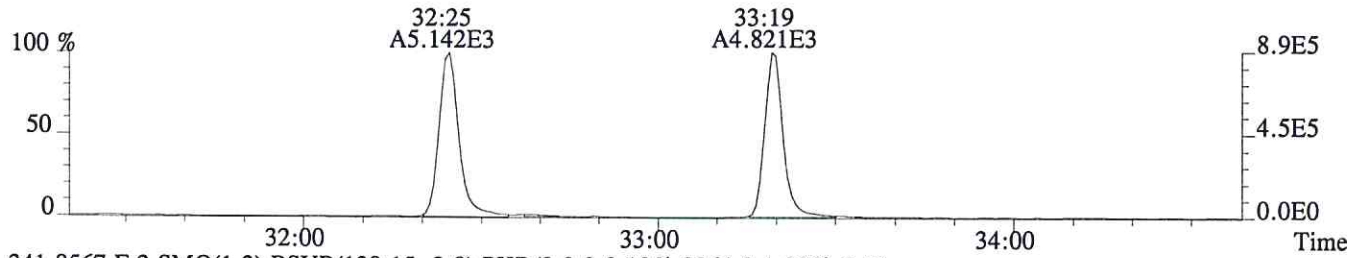
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



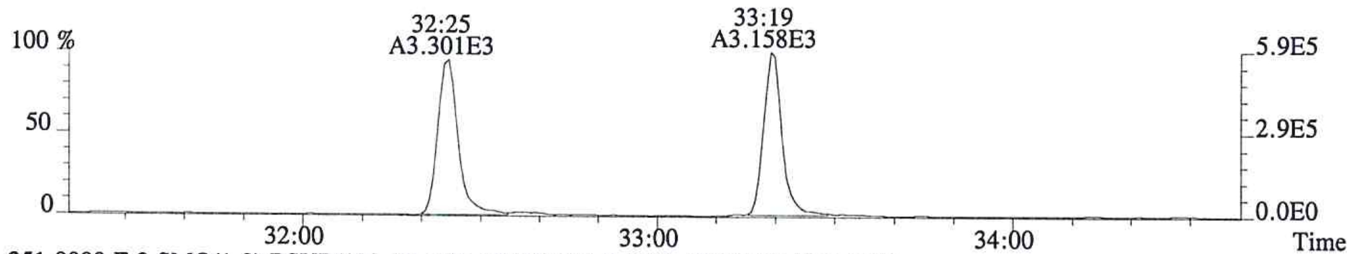
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



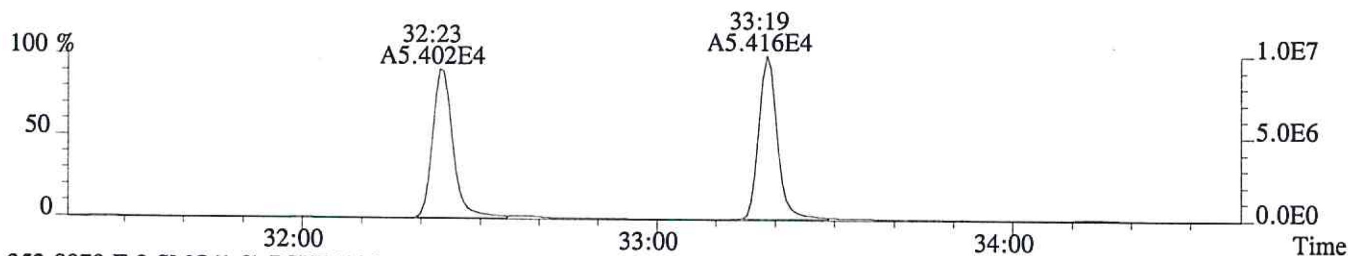
File:P603983 #1-298 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



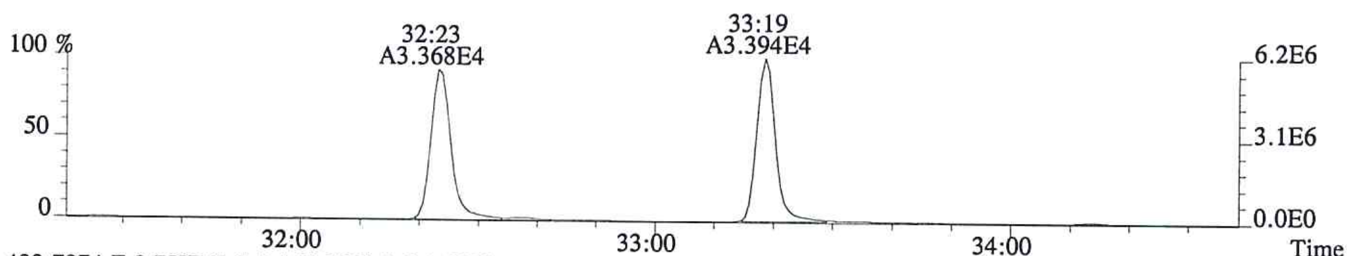
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3364.0,1.00%,F,T)



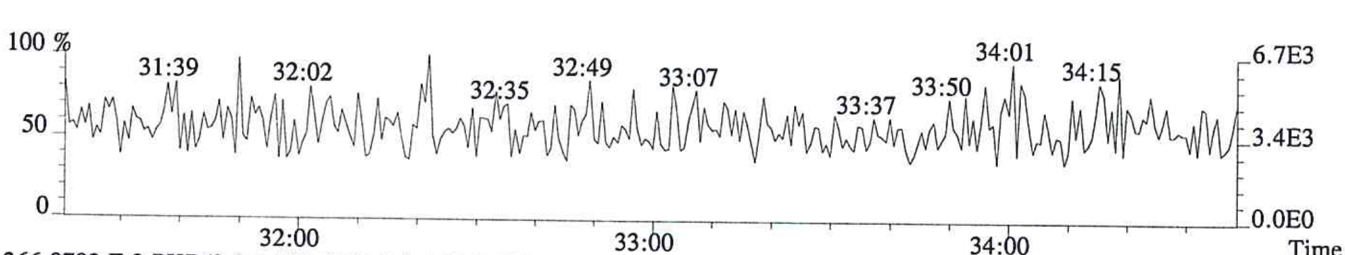
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19044.0,1.00%,F,T)



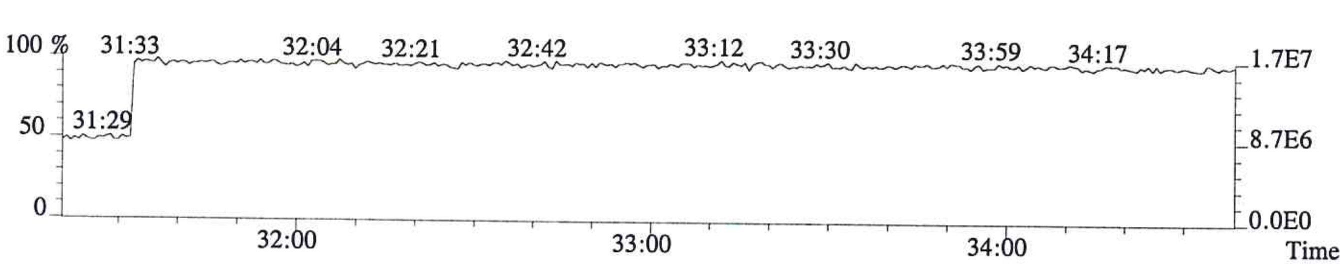
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9552.0,1.00%,F,T)



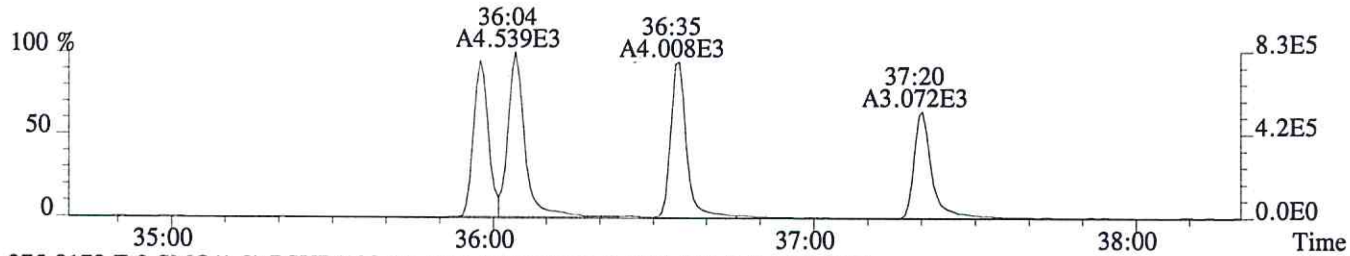
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



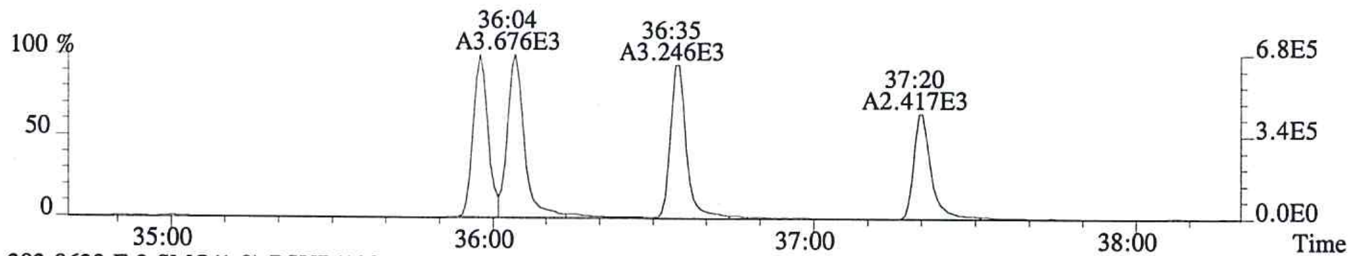
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



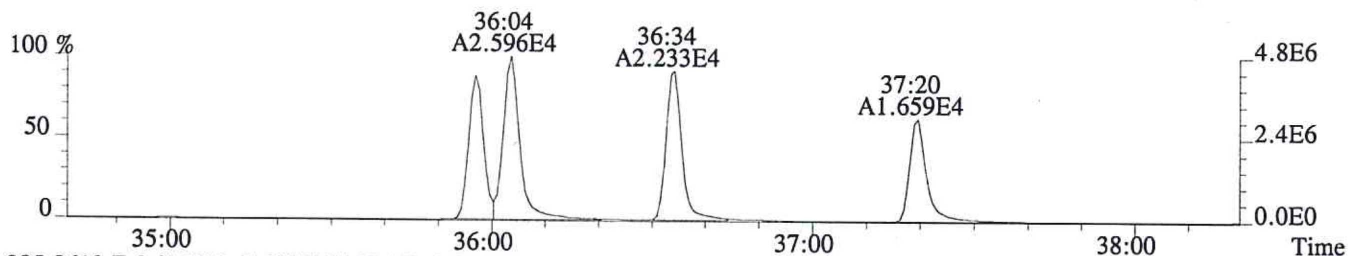
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



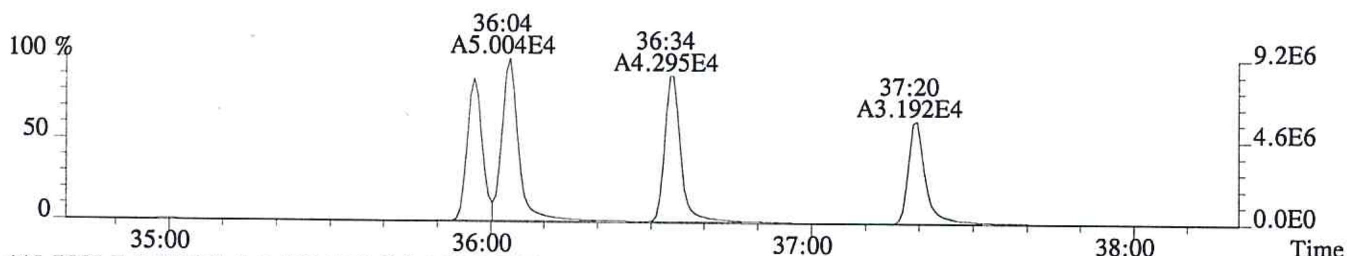
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



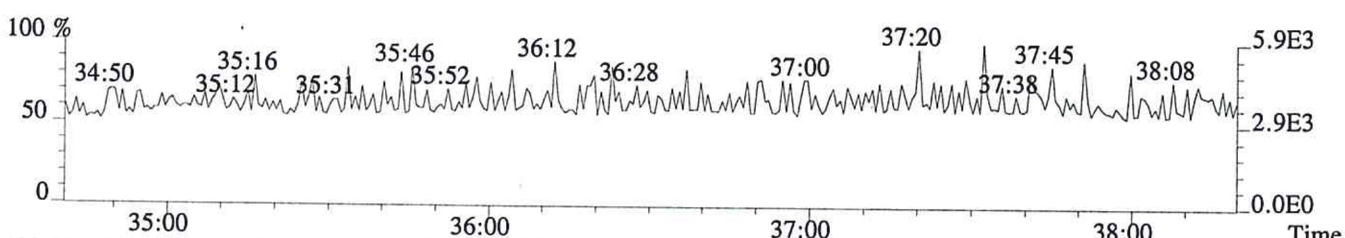
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



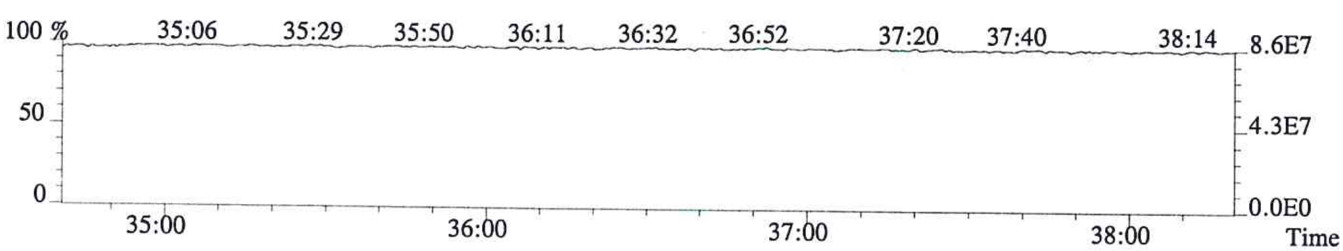
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



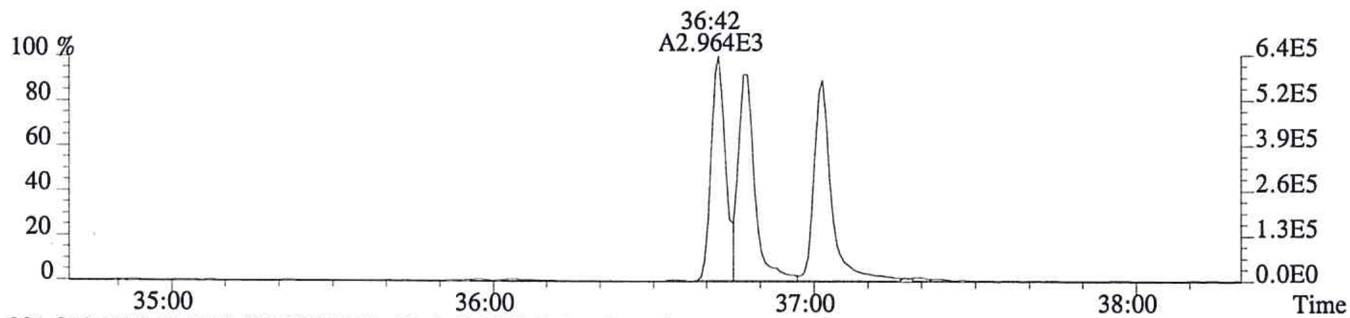
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



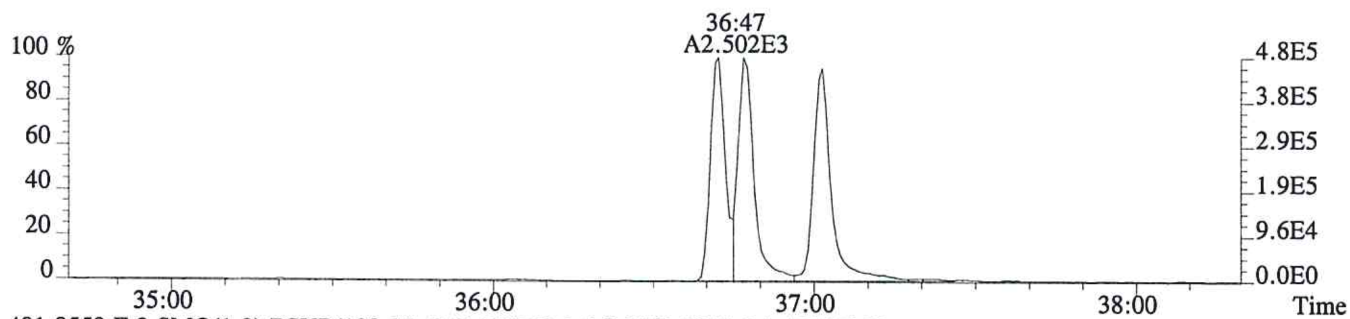
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



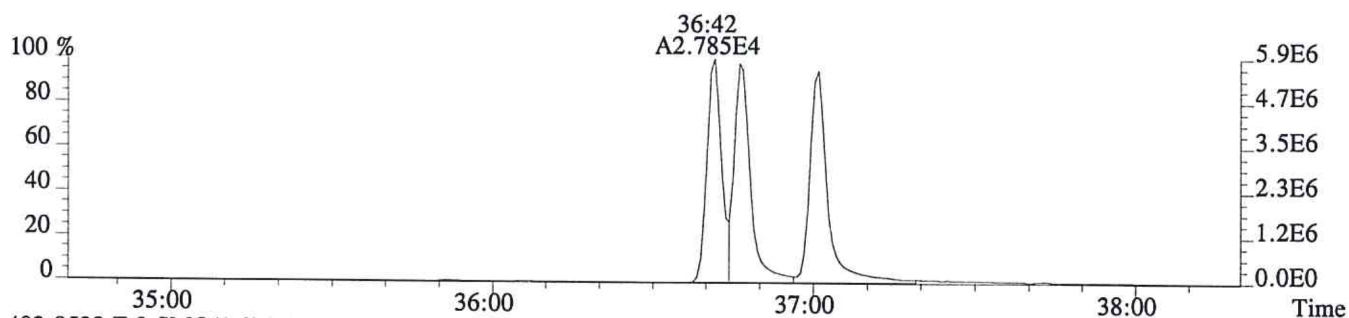
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



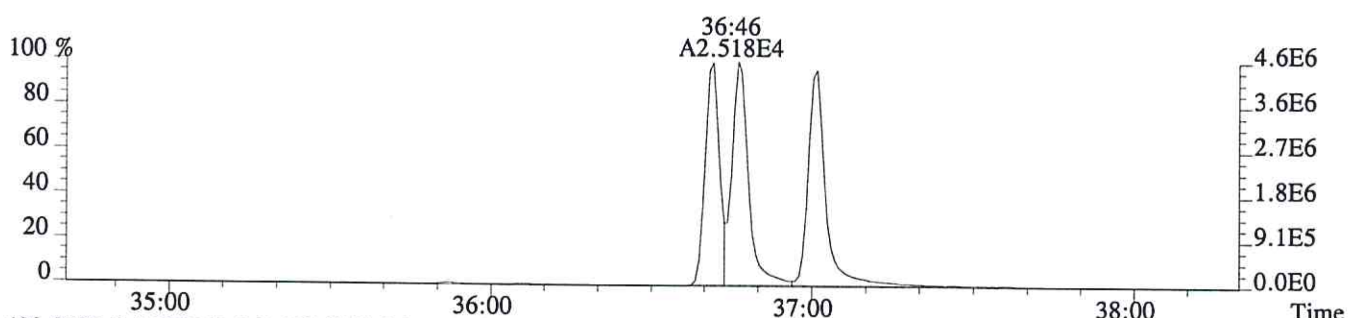
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



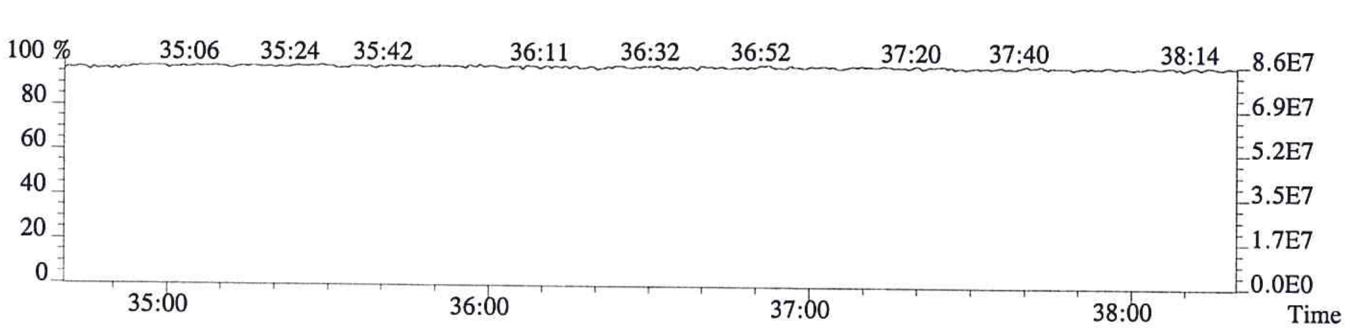
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2312.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	6.879e+03	8.895e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.946e+04	3.185e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.200e+03	6.636e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	7.245e+04	9.072e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.083e+05	6.772e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.074e+05	6.710e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.456e+04	6.770e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	5.981e+04	7.456e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	5.212e+04	6.669e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	5.576e+04	7.031e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	6.329e+04	5.113e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.213e+04				no	0.945

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Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.22e+06	1.06e+03	1.2e+03	1.59e+06	4.41e+03	3.6e+02
3	2,3,4,7,8-PeCDF	9.20e+06	1.30e+04	7.1e+02	6.00e+06	9.93e+03	6.0e+02
11	2,3,7,8-TCDD	9.42e+05	1.36e+03	6.9e+02	1.22e+06	1.25e+03	9.7e+02
18	13C-2,3,7,8-TCDF	1.28e+07	4.69e+03	2.7e+03	1.60e+07	3.17e+03	5.0e+03
19	13C-1,2,3,7,8-PeCDF	1.89e+07	2.06e+04	9.2e+02	1.20e+07	1.57e+04	7.6e+02
20	13C-2,3,4,7,8-PeCDF	2.04e+07	2.06e+04	9.9e+02	1.28e+07	1.57e+04	8.2e+02
24	13C-1,2,3,7,8,9-HxCDF	6.60e+06	2.15e+03	3.1e+03	1.28e+07	2.19e+03	5.8e+03
26	13C-1,2,3,4-TCDF	9.83e+06	4.69e+03	2.1e+03	1.24e+07	3.17e+03	3.9e+03
27	13C-2,3,7,8-TCDD	9.62e+06	9.05e+03	1.1e+03	1.23e+07	4.67e+03	2.6e+03
33	13C-1,2,3,4-TCDD	1.05e+07	9.05e+03	1.2e+03	1.32e+07	4.67e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.94e+03	6.2e+03	9.53e+06	1.50e+03	6.4e+03
35	37Cl-2,3,7,8-TCDD	2.22e+06	2.64e+03	8.4e+02			

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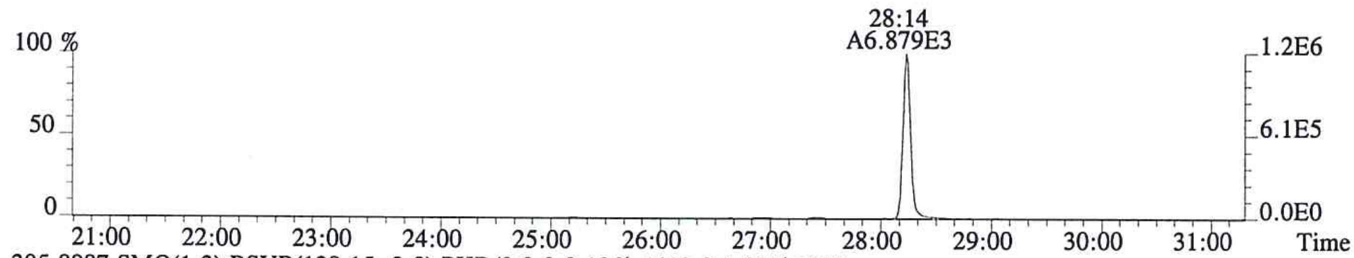
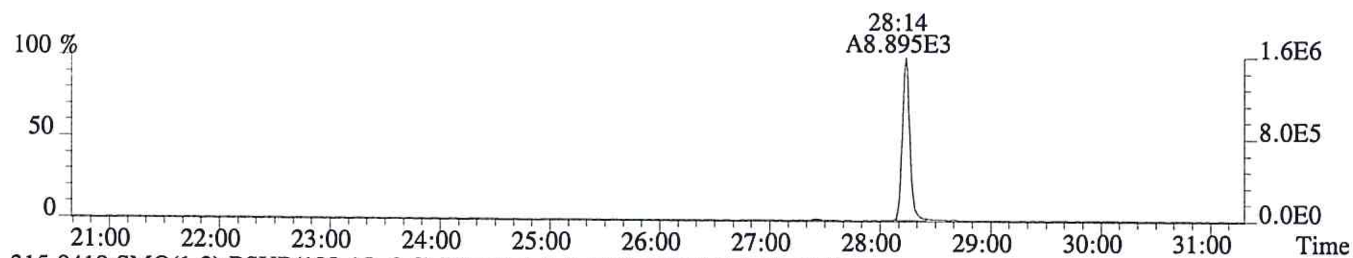
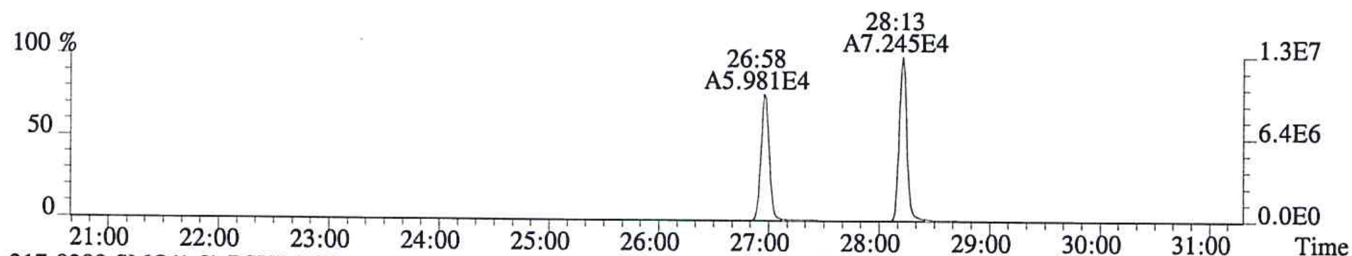
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



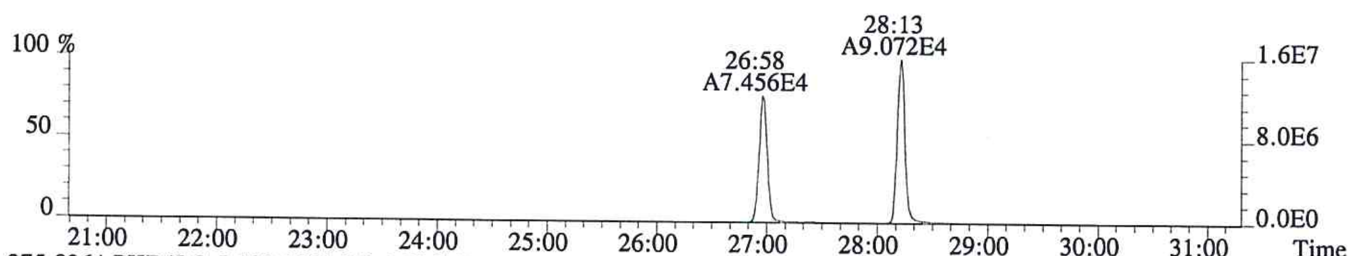
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



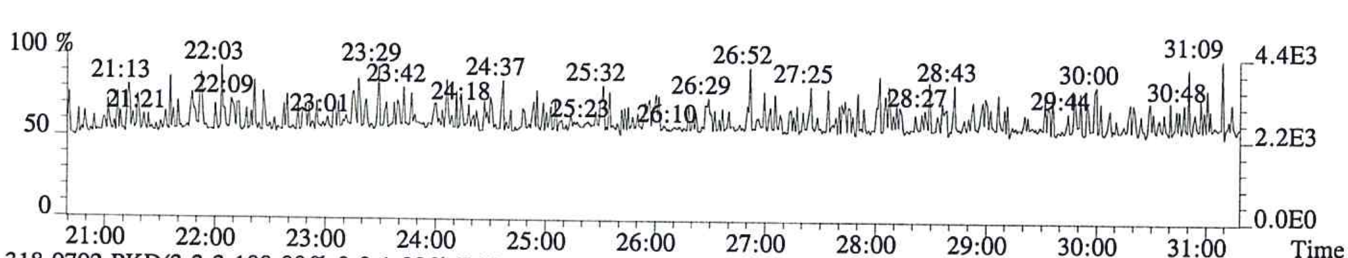
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4688.0,1.00%,F,T)



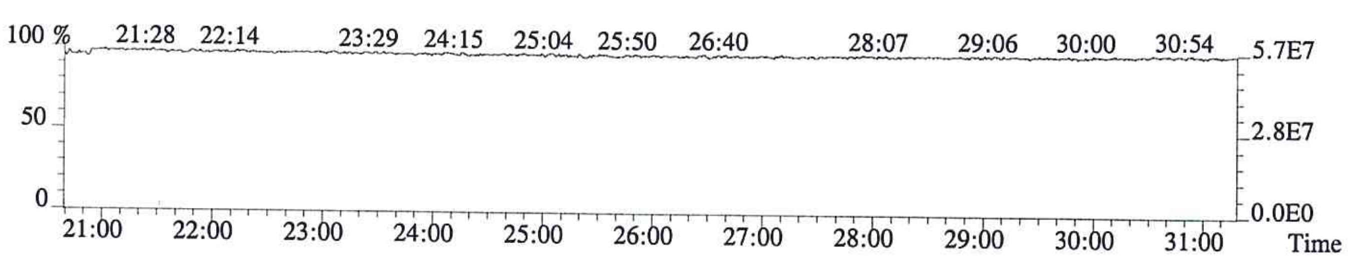
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

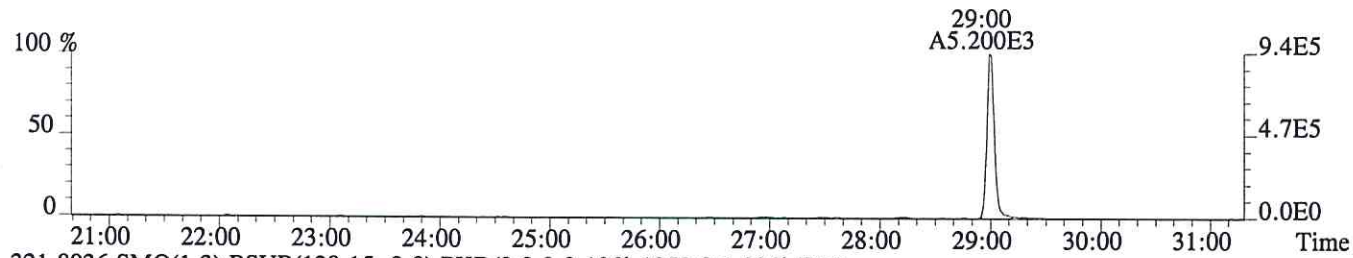


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

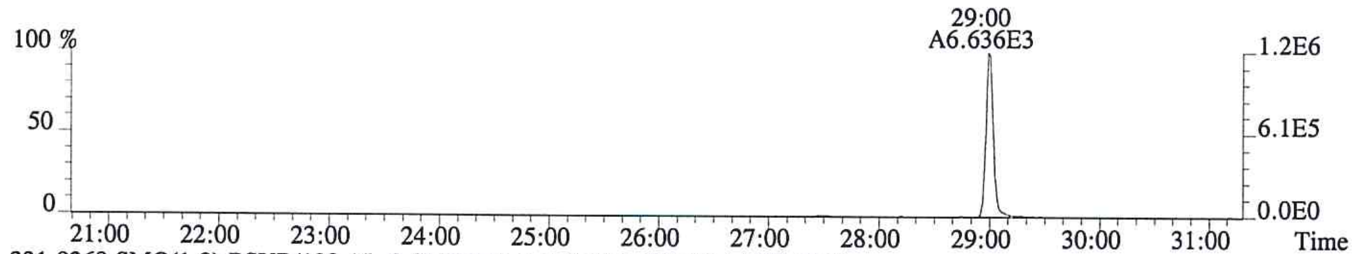


File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

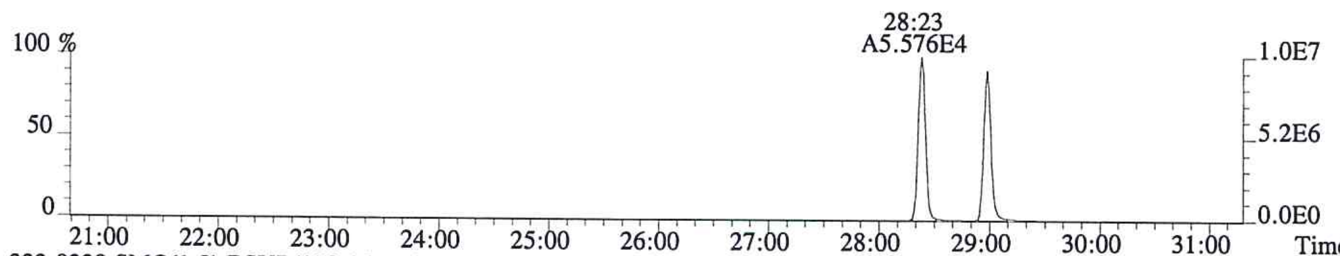
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



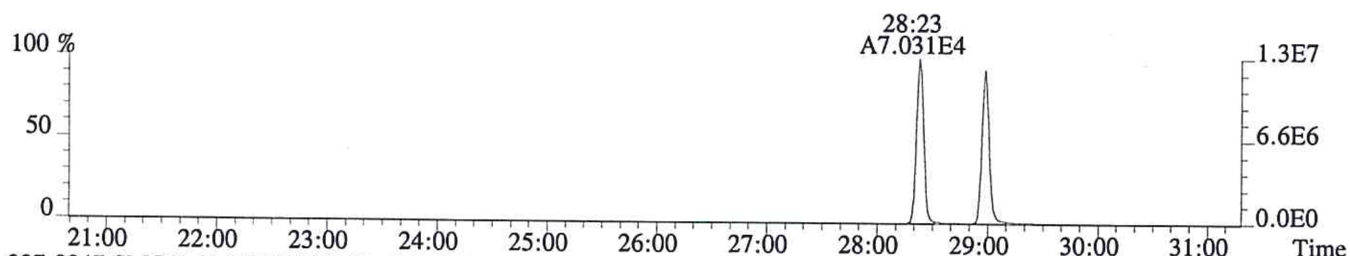
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



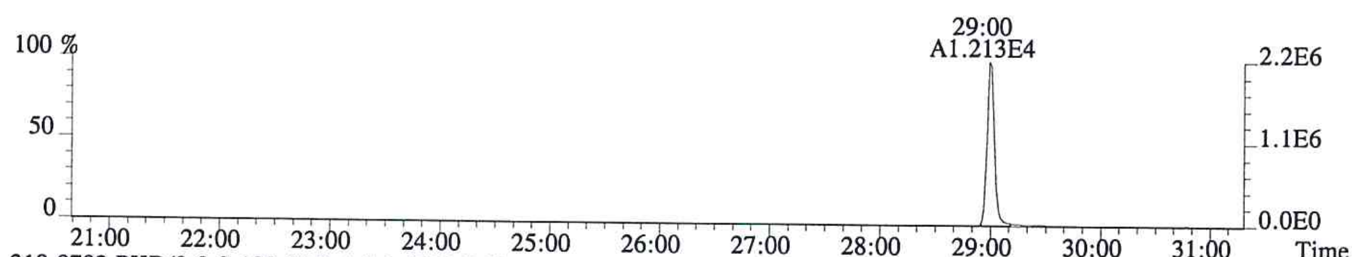
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9052.0,1.00%,F,T)



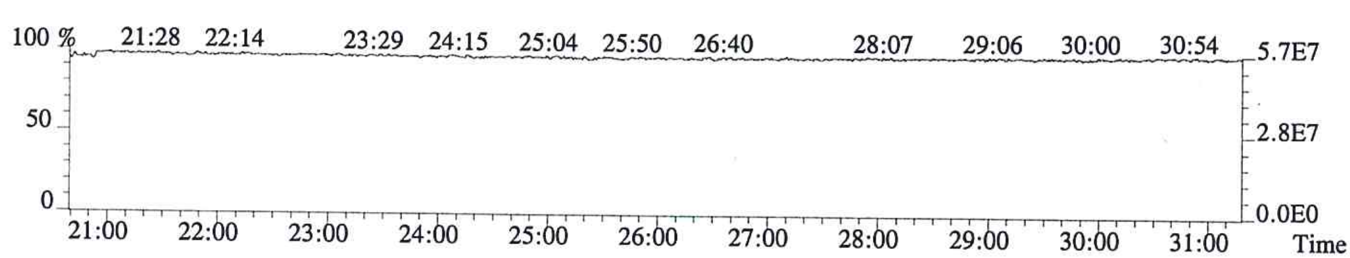
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



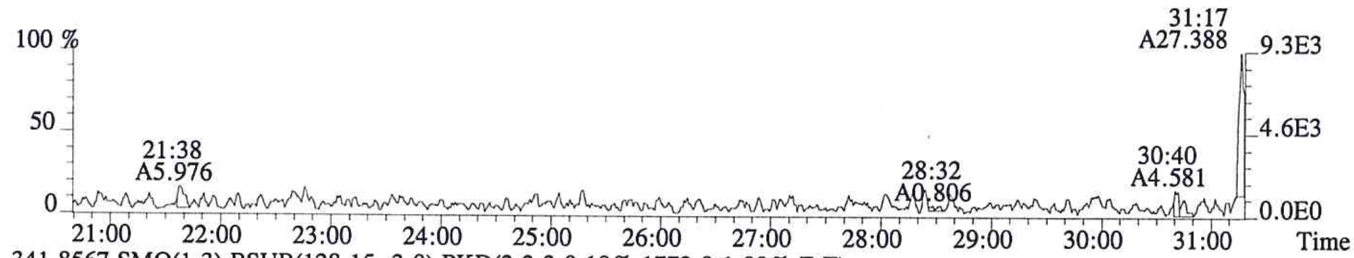
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



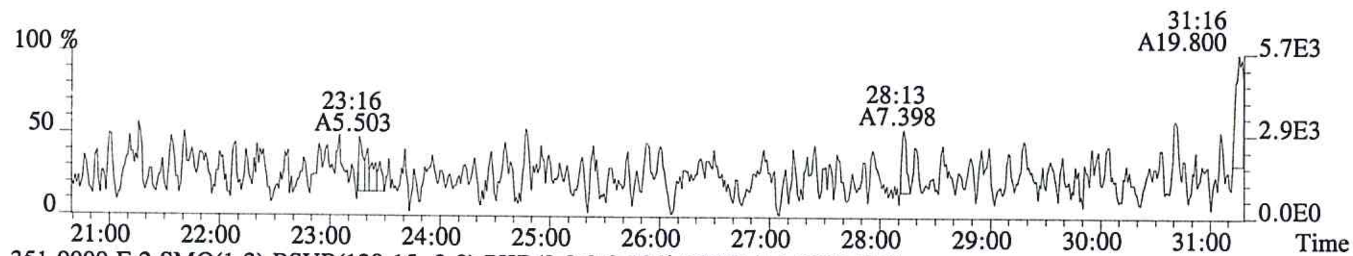
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



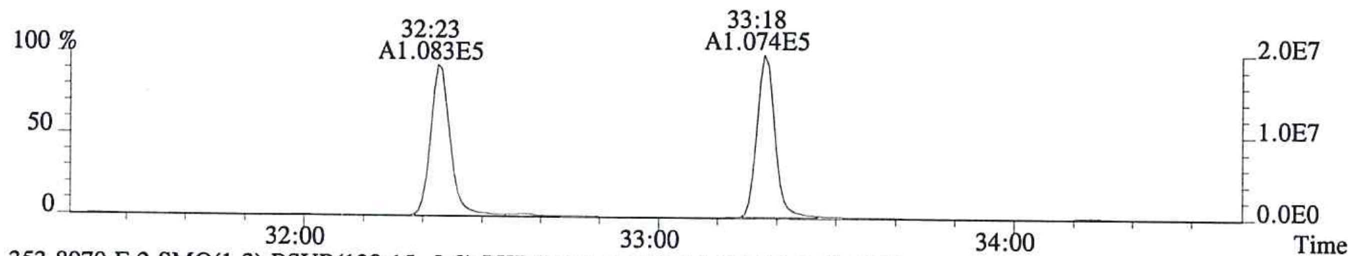
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



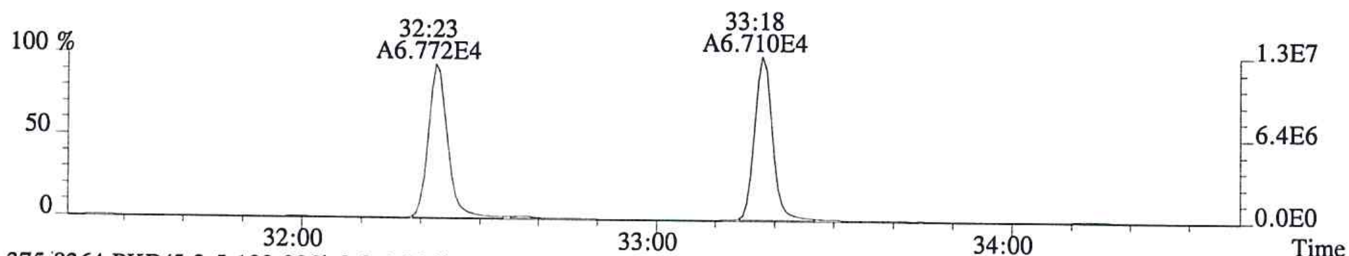
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



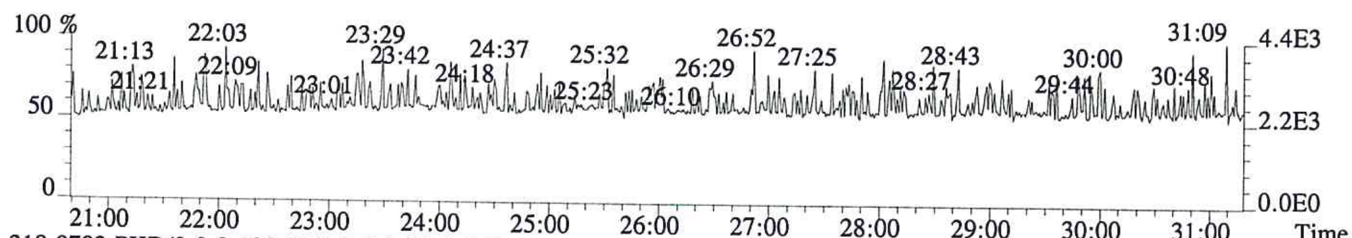
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20608.0,1.00%,F,T)



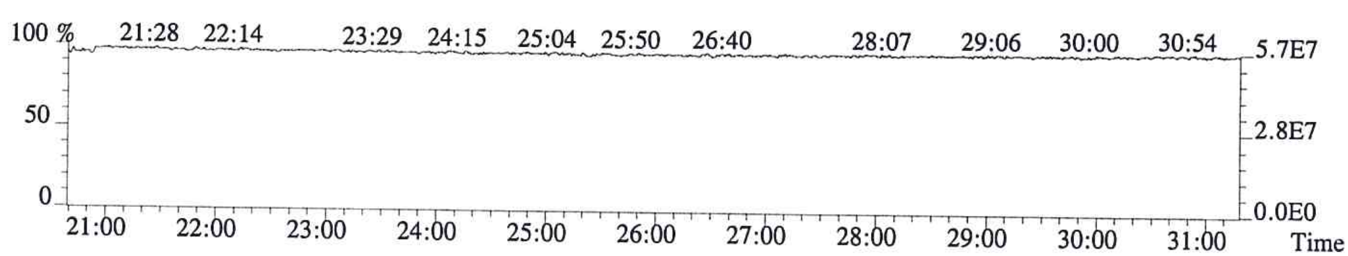
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15668.0,1.00%,F,T)



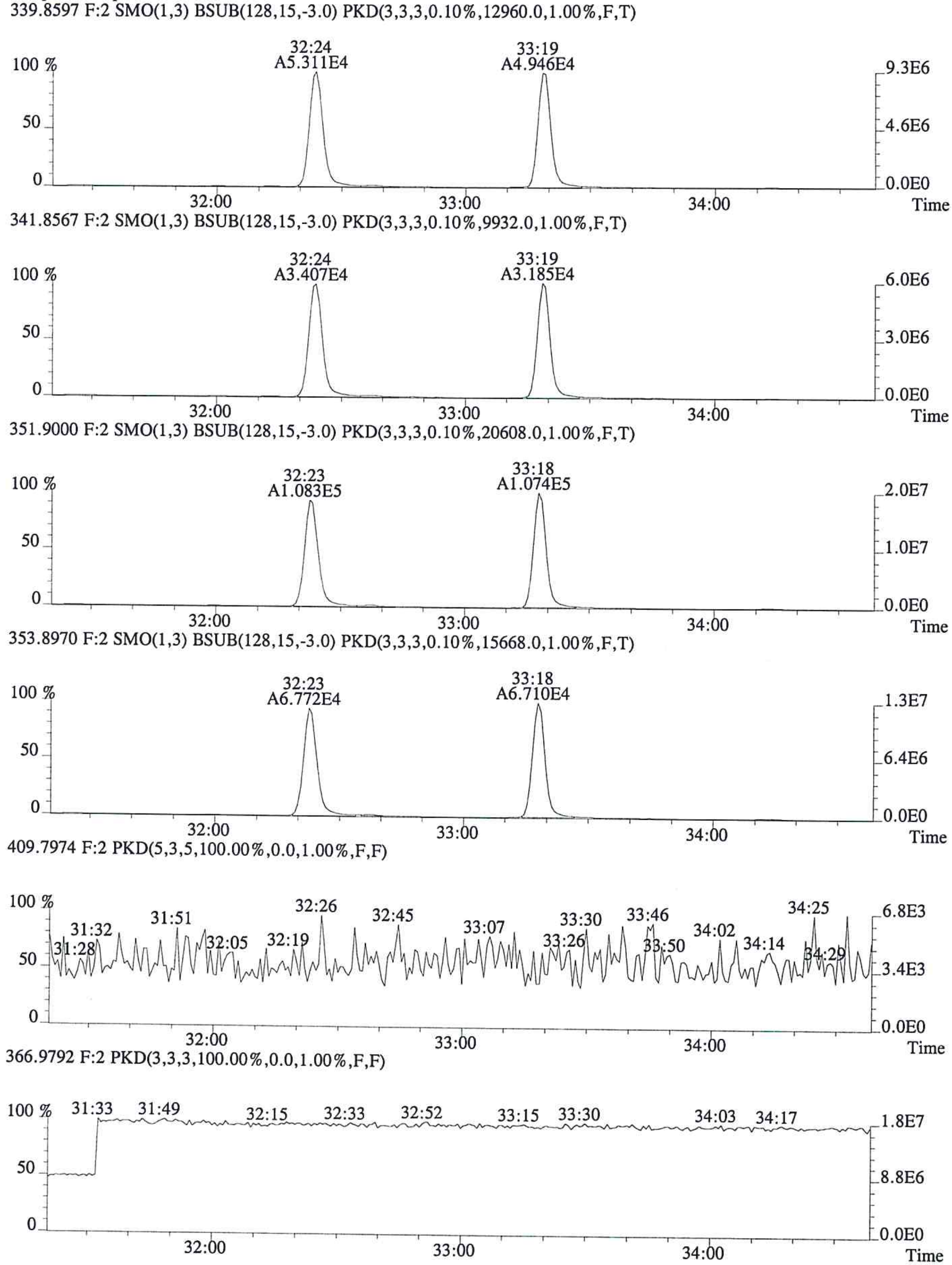
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



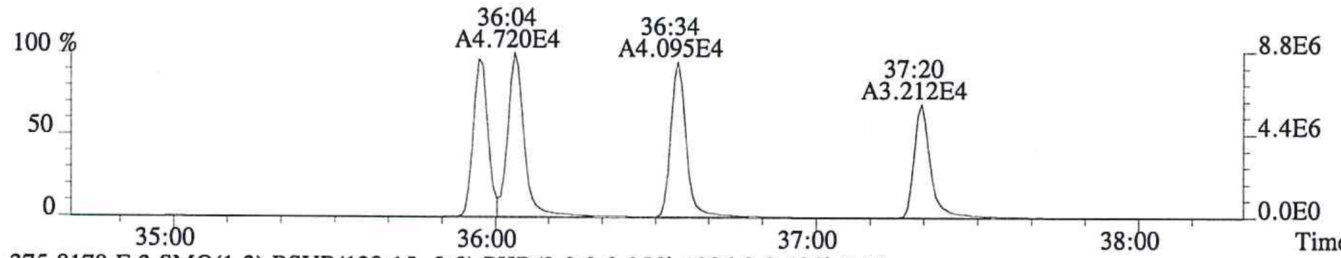
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



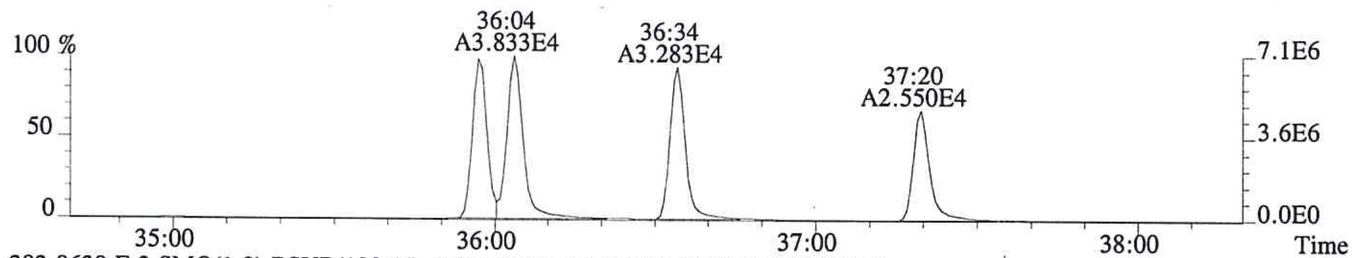
File:P603984 #1-298 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3



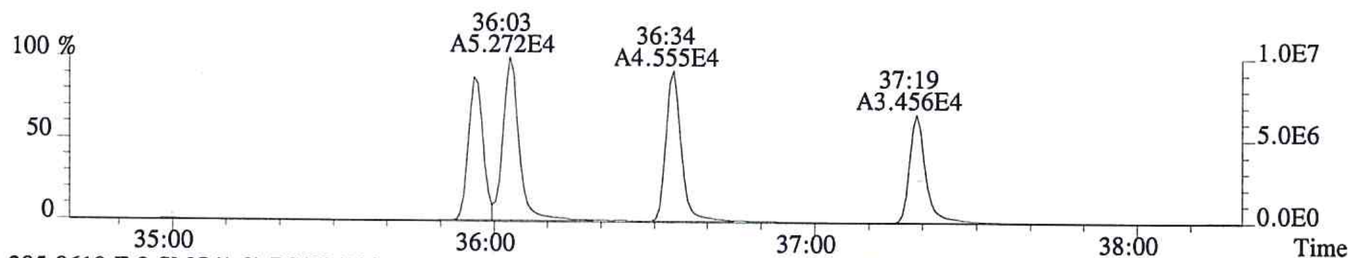
File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



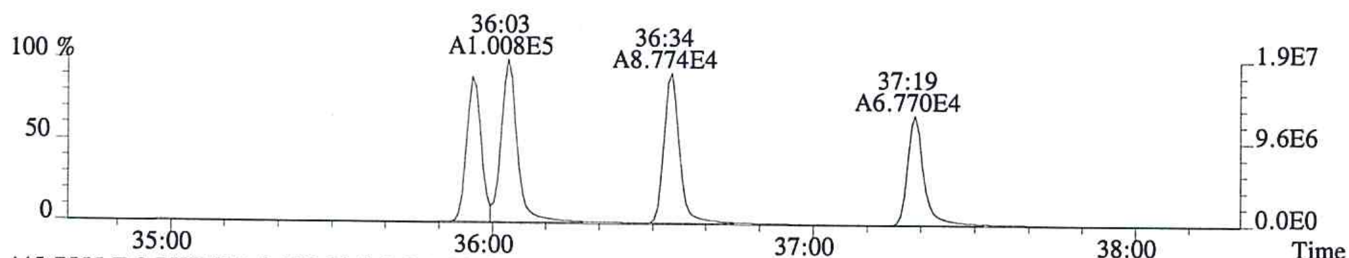
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



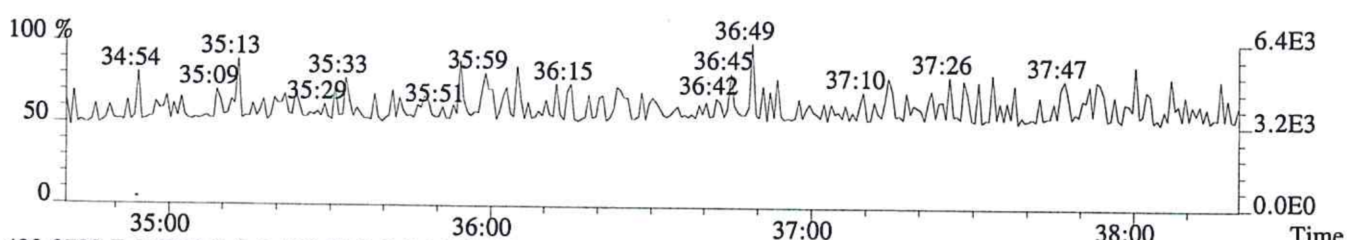
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.40%,F,T)



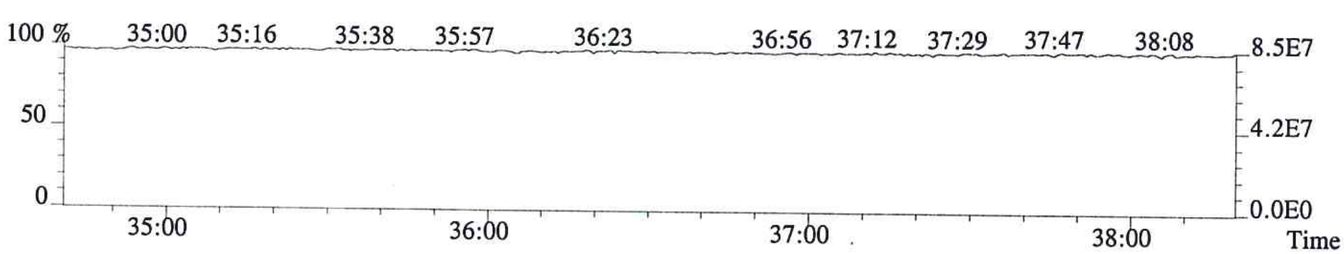
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

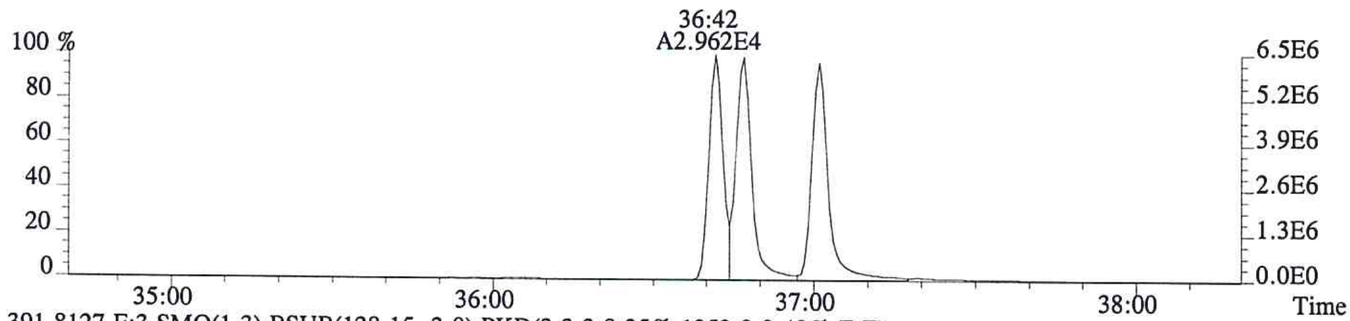


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

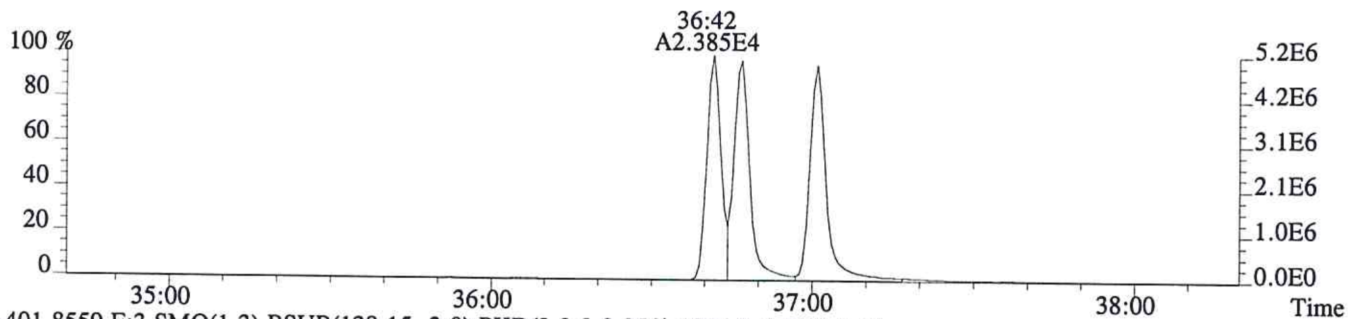


File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

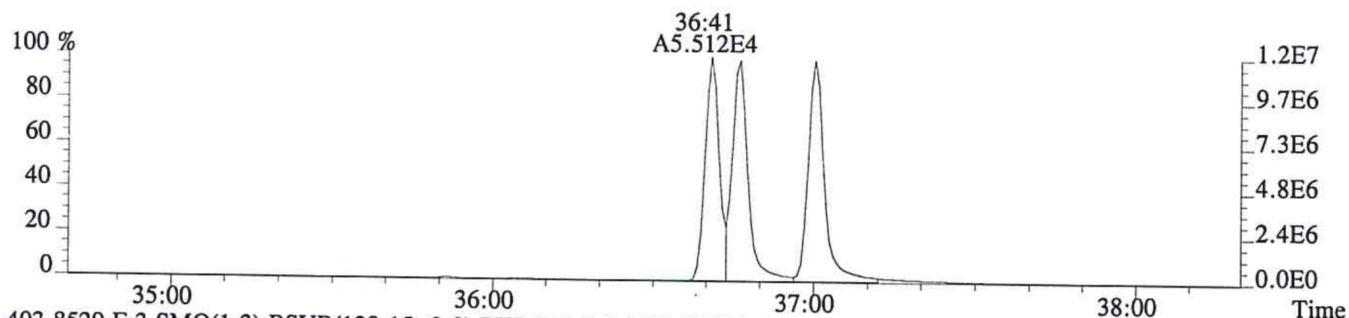
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



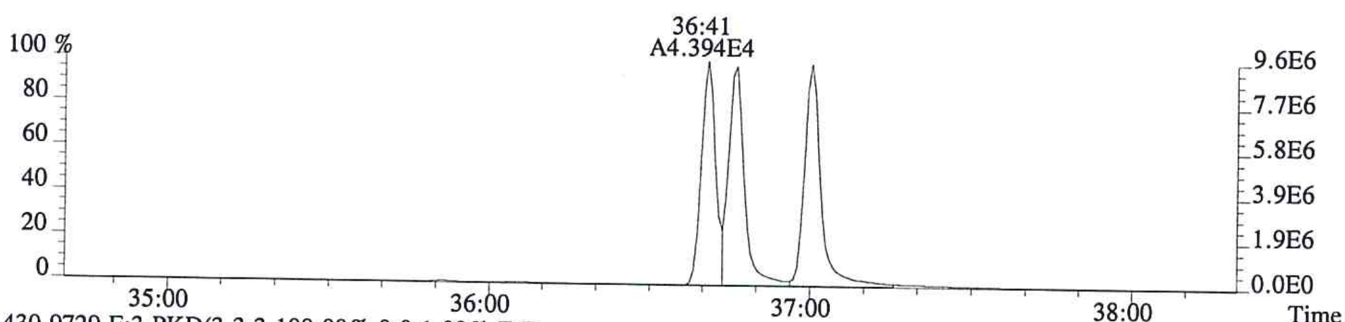
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



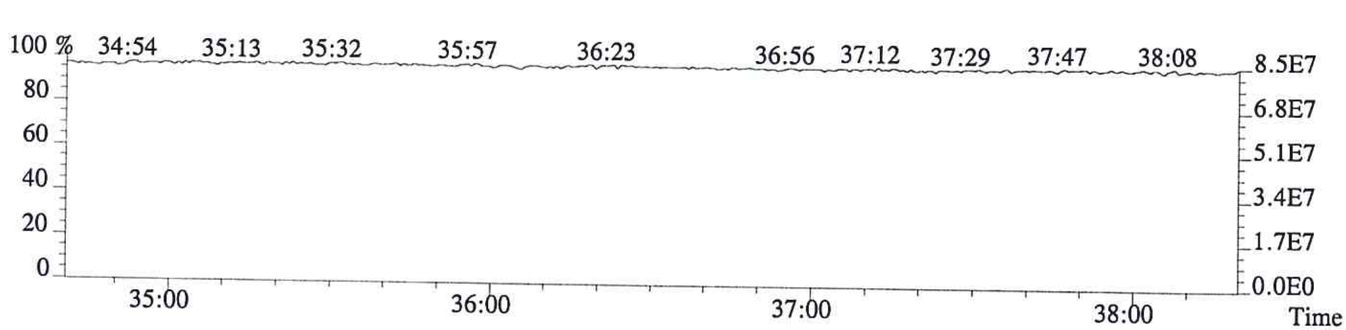
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.595e+04	2.078e+04	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.157e+05	7.439e+04	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.221e+04	1.554e+04	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	4.217e+04	5.242e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.222e+04	3.890e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	6.169e+04	3.829e+04	1.61	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.000e+04	3.842e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.265e+04	5.368e+04	0.79	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	3.003e+04	3.830e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	3.211e+04	4.076e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.705e+04	2.987e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	2.794e+04				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.81e+06	1.30e+03	2.2e+03	3.64e+06	4.14e+03	8.8e+02
3	2,3,4,7,8-PeCDF	2.21e+07	2.52e+04	8.8e+02	1.43e+07	2.29e+04	6.2e+02
11	2,3,7,8-TCDD	2.23e+06	1.02e+03	2.2e+03	2.90e+06	1.31e+03	2.2e+03
18	13C-2,3,7,8-TCDF	7.32e+06	6.01e+03	1.2e+03	9.03e+06	4.38e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	1.09e+07	1.48e+04	7.4e+02	6.85e+06	8.31e+03	8.2e+02
20	13C-2,3,4,7,8-PeCDF	1.18e+07	1.48e+04	8.0e+02	7.28e+06	8.31e+03	8.8e+02
24	13C-1,2,3,7,8,9-HxCDF	3.79e+06	8.16e+02	4.6e+03	7.39e+06	2.79e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.97e+06	6.01e+03	1.2e+03	8.78e+06	4.38e+03	2.0e+03
27	13C-2,3,7,8-TCDD	5.43e+06	9.69e+03	5.6e+02	6.86e+06	4.18e+03	1.6e+03
33	13C-1,2,3,4-TCDD	5.94e+06	9.69e+03	6.1e+02	7.48e+06	4.18e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.80e+06	2.05e+03	3.3e+03	5.47e+06	2.34e+03	2.3e+03
35	37Cl-2,3,7,8-TCDD	5.21e+06	2.06e+03	2.5e+03			

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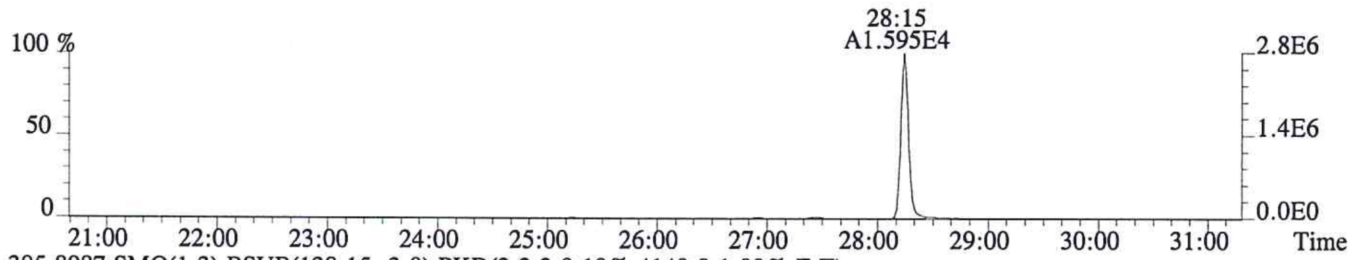
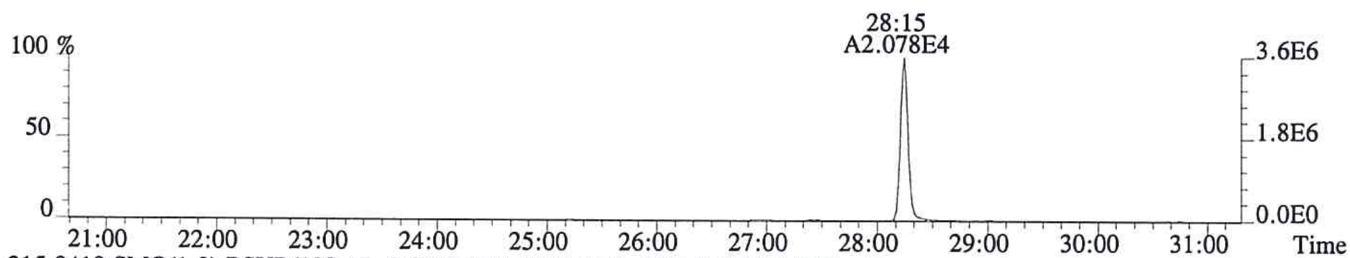
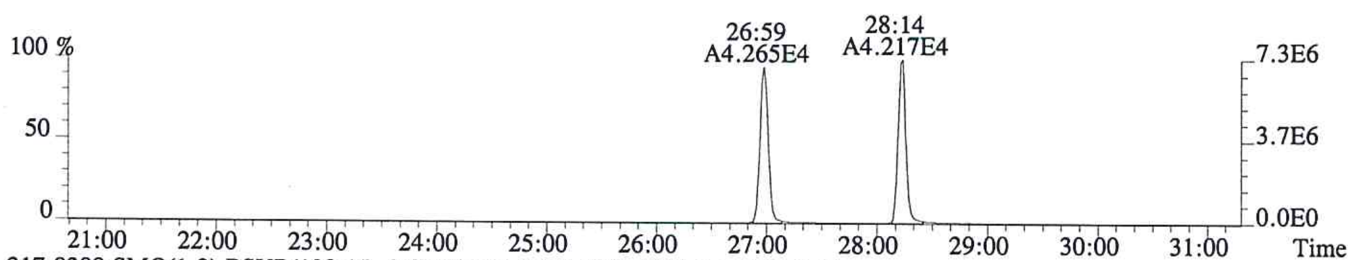
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



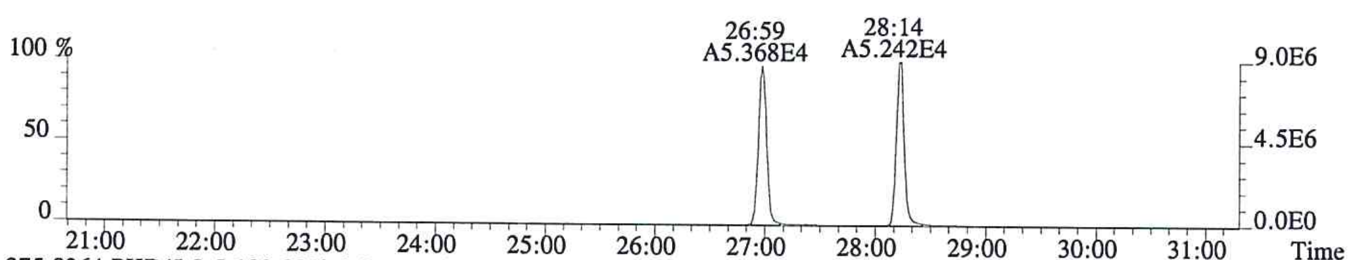
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4140.0,1.00%,F,T)



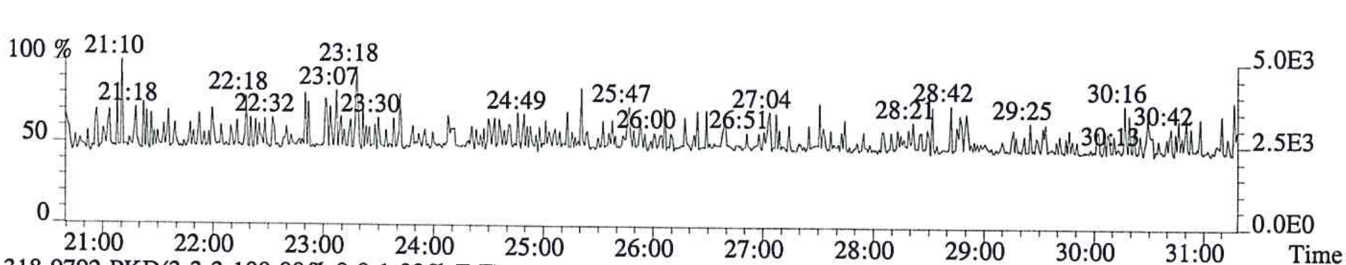
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6012.0,1.00%,F,T)



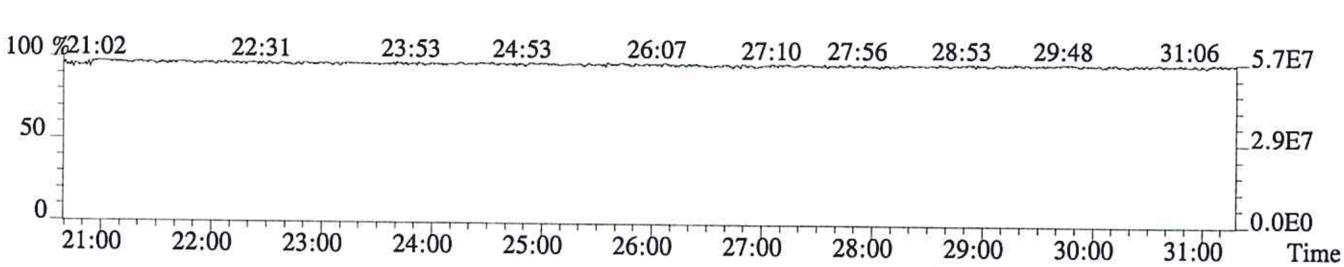
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4384.0,1.00%,F,T)



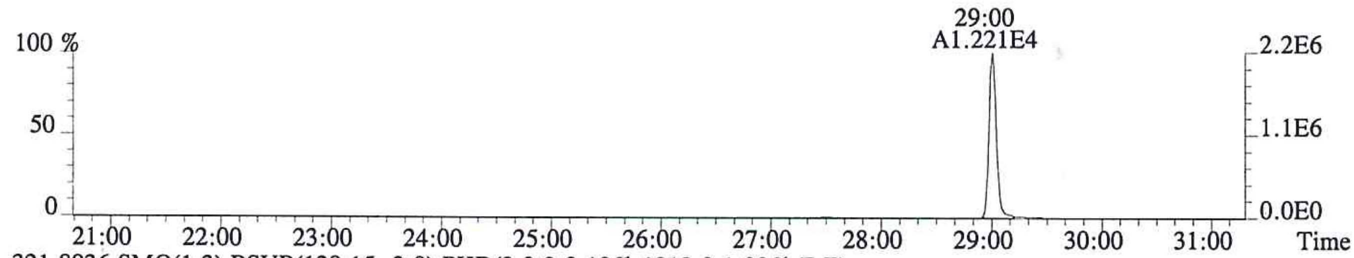
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



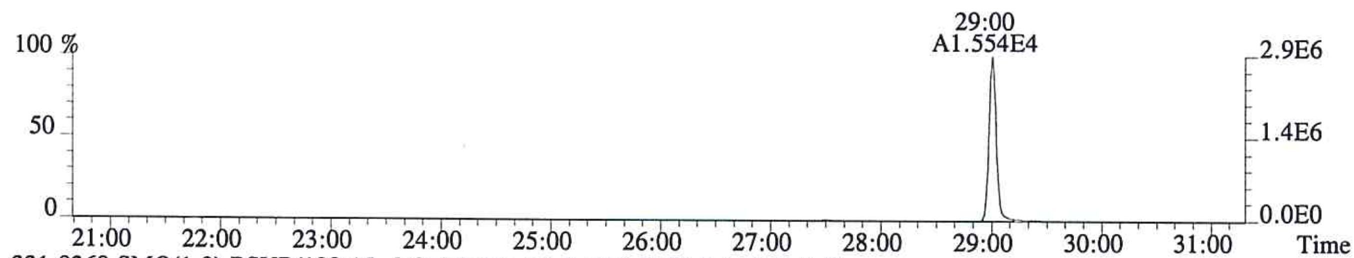
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



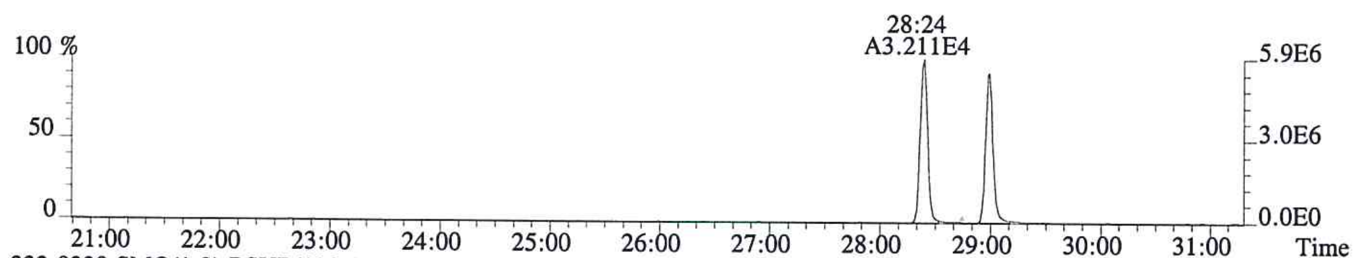
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



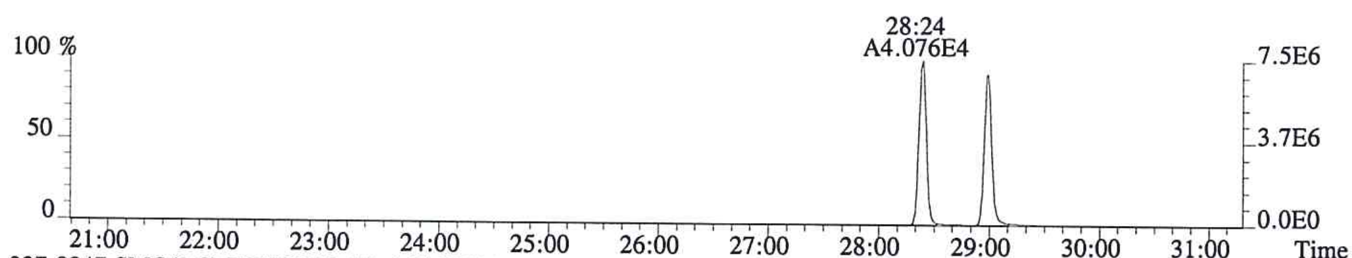
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



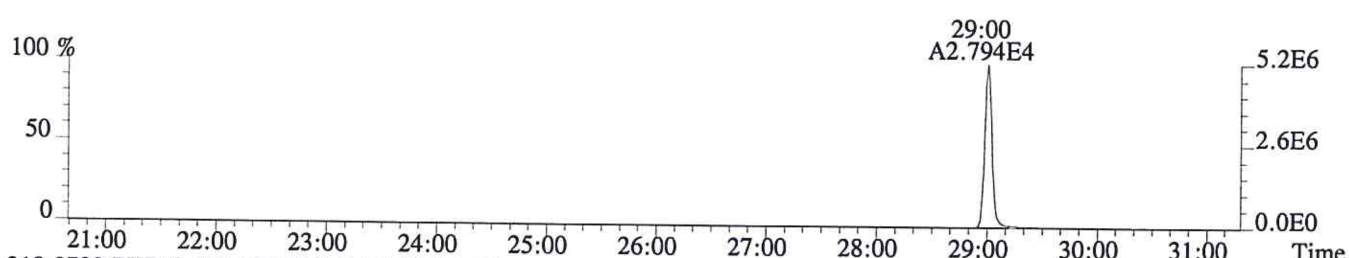
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9688.0,1.00%,F,T)



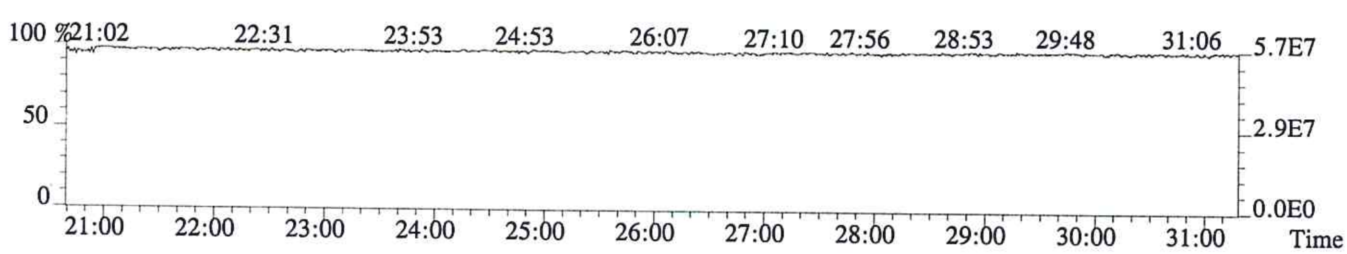
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



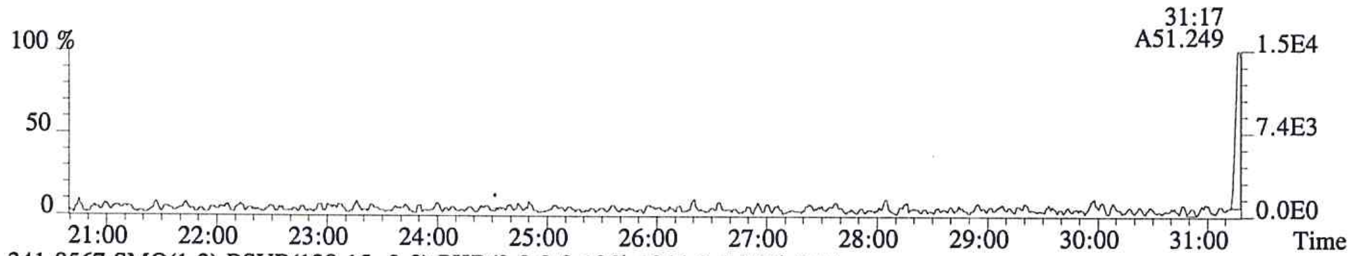
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



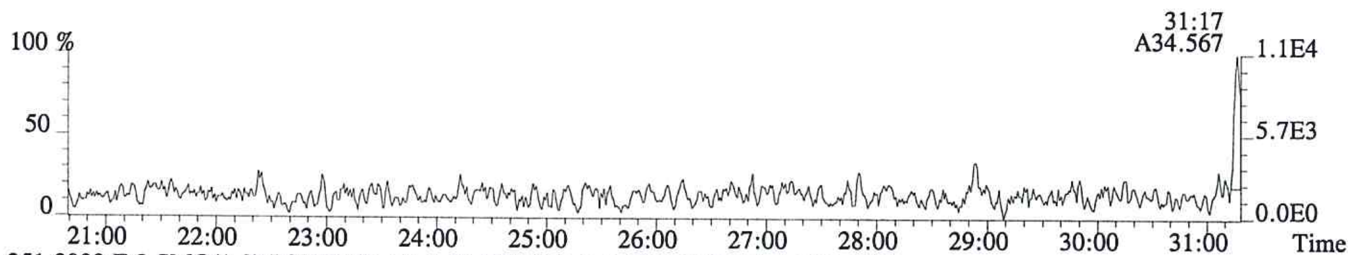
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



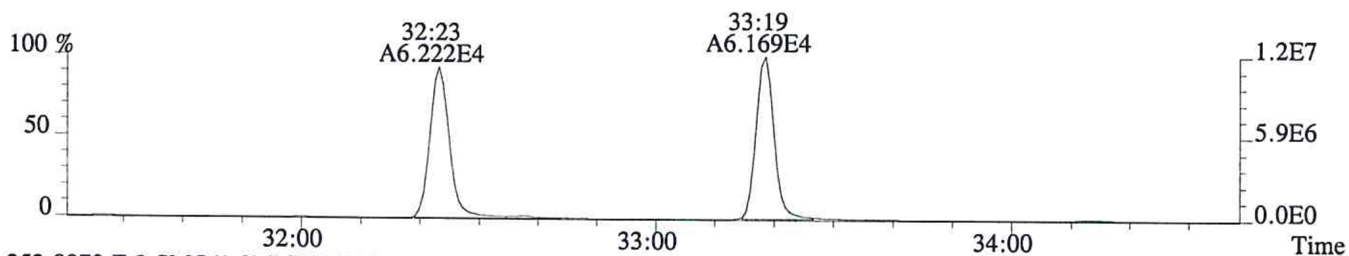
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



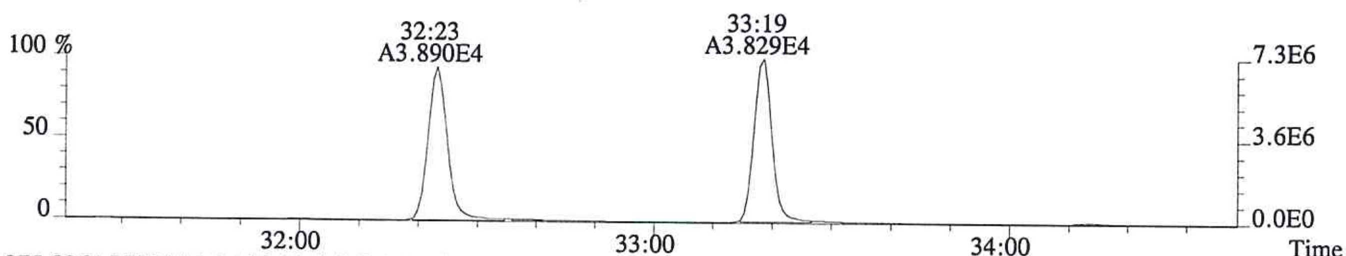
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



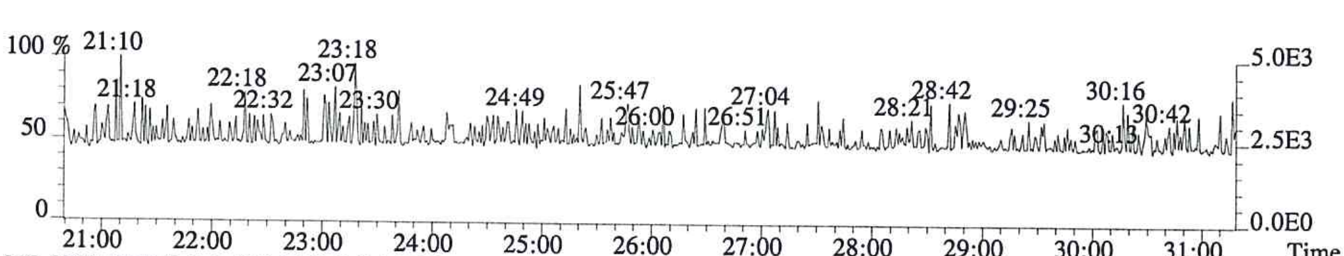
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14760.0,1.00%,F,T)



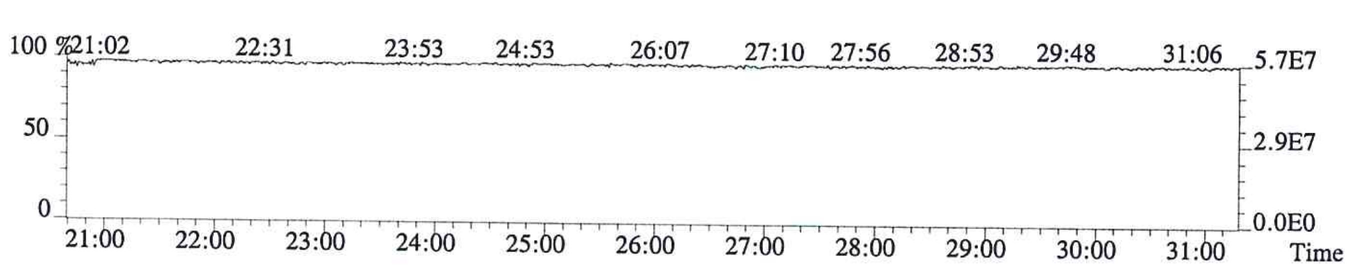
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8308.0,1.00%,F,T)



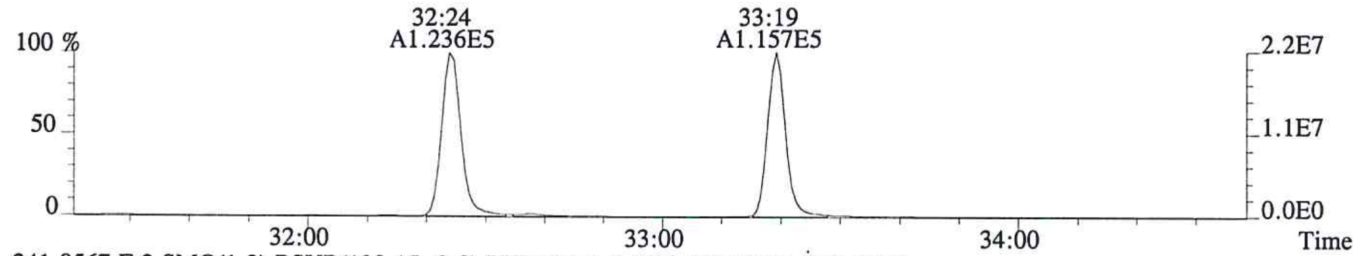
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



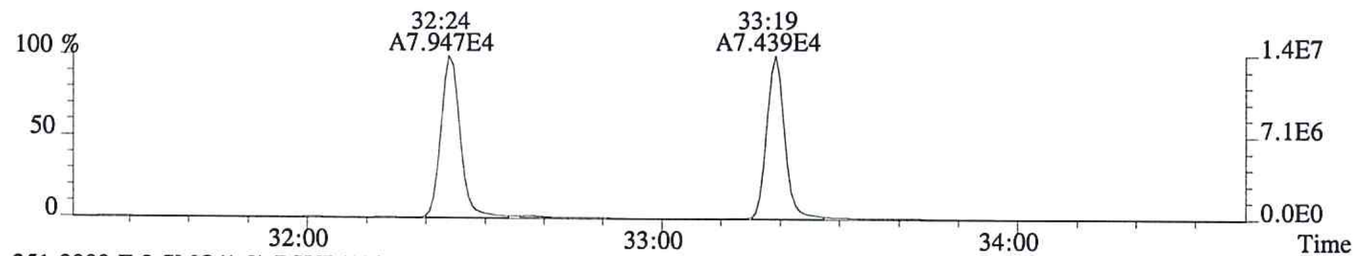
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



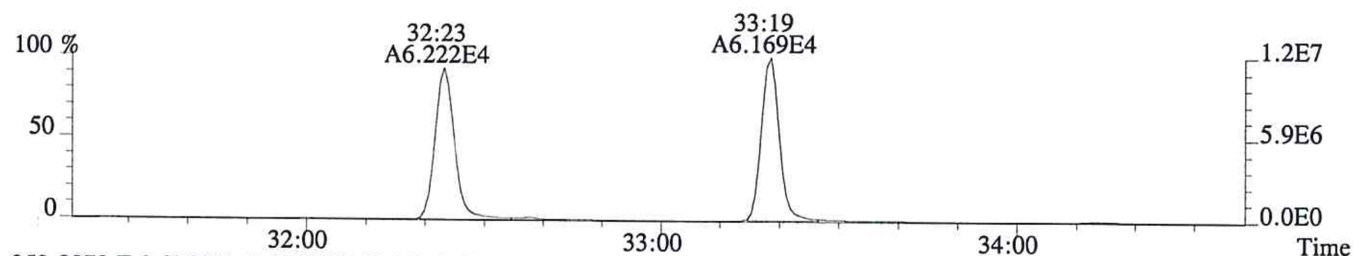
File:P603985 #1-298 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25184.0,1.00%,F,T)



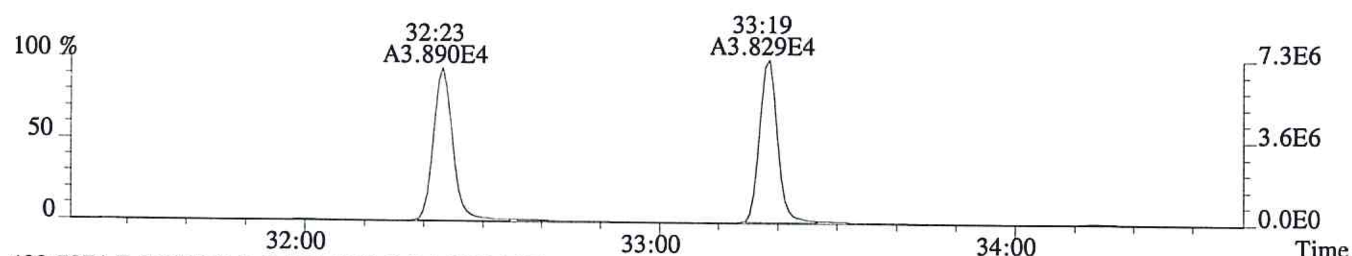
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,22868.0,1.00%,F,T)



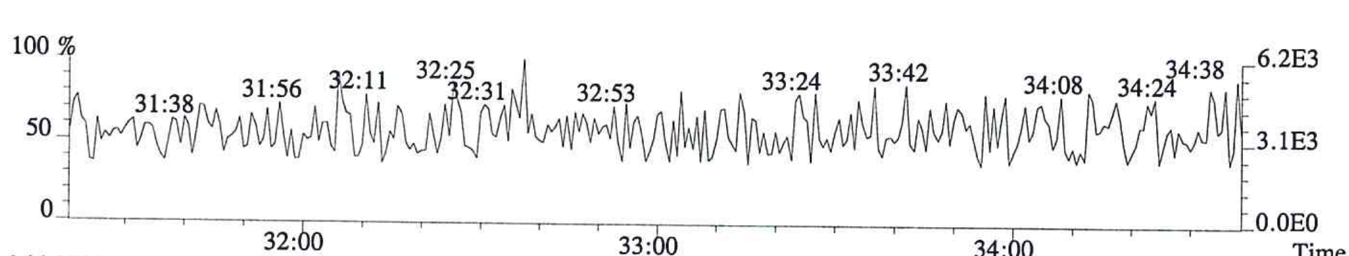
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14760.0,1.00%,F,T)



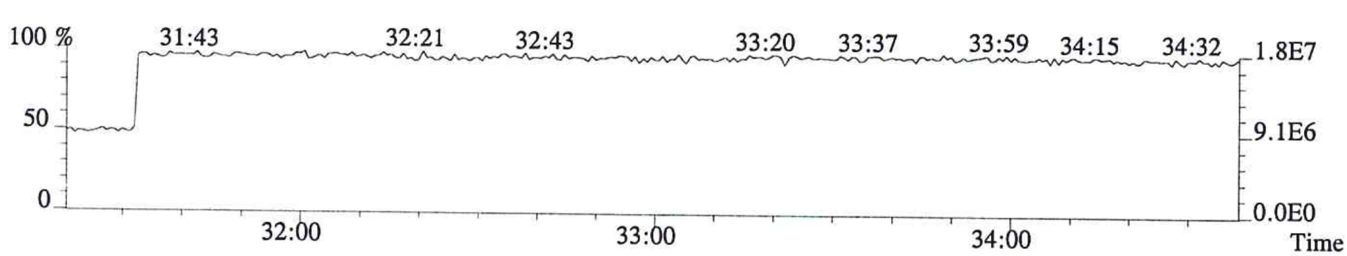
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8308.0,1.00%,F,T)



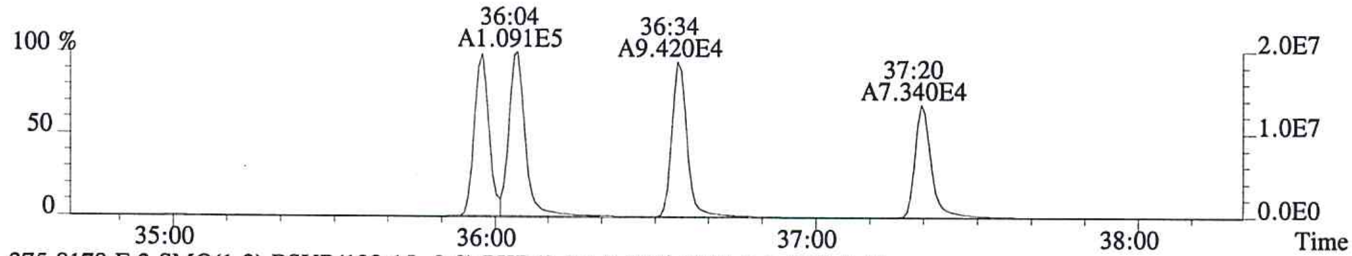
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



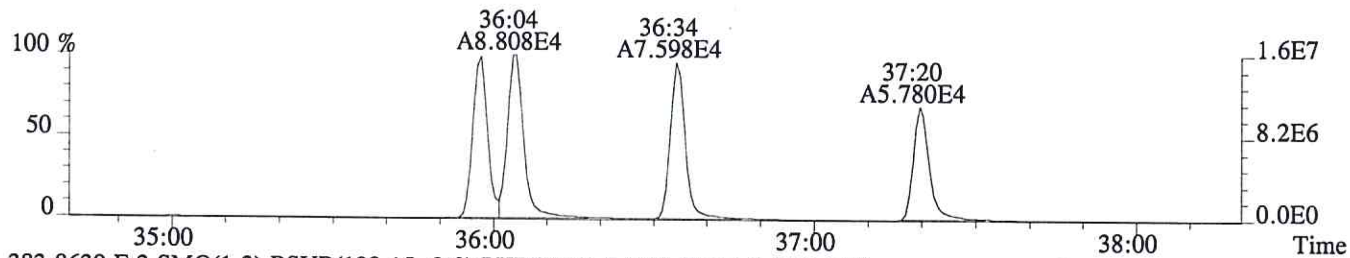
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



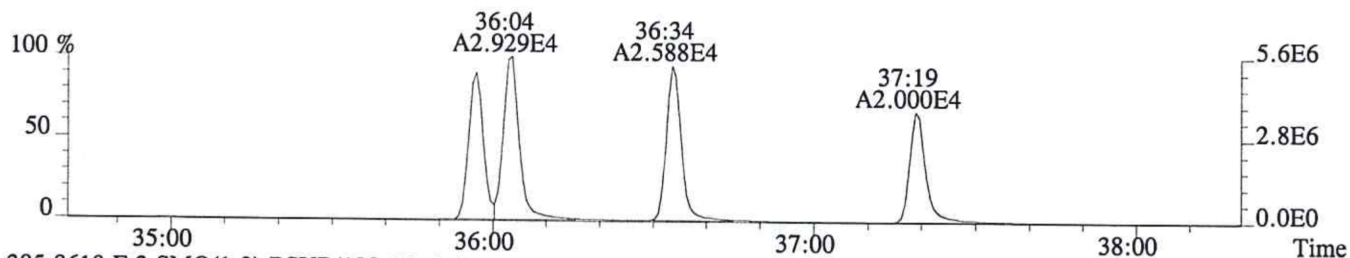
File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



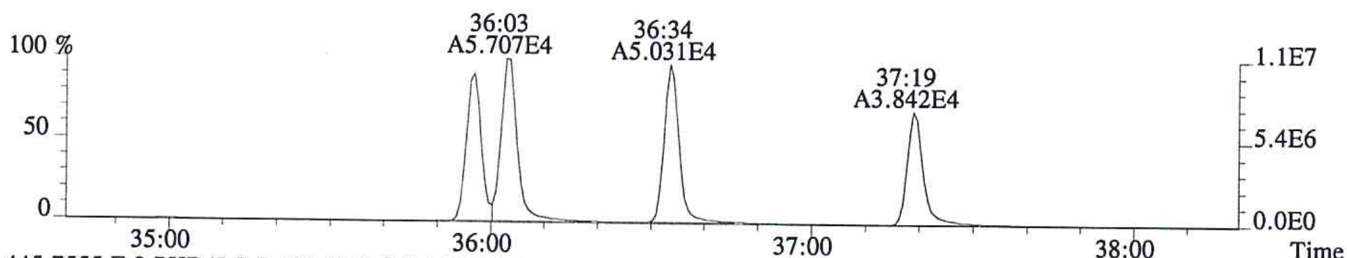
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



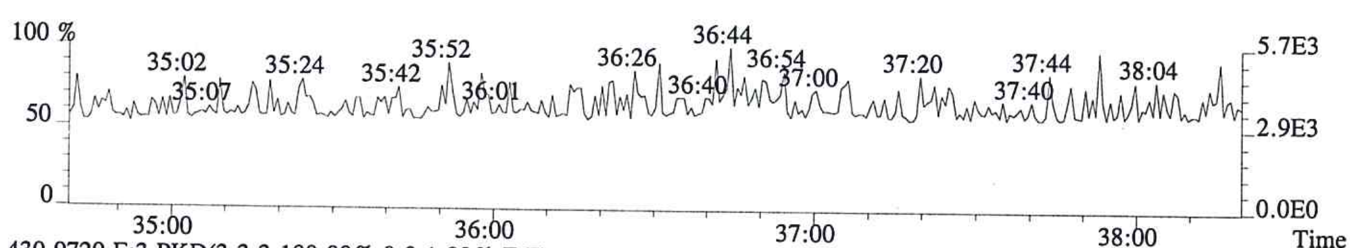
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



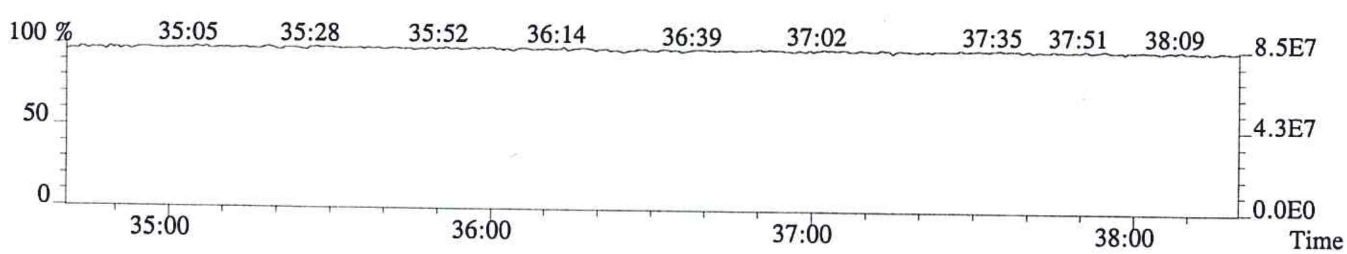
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2792.0,0.40%,F,T)



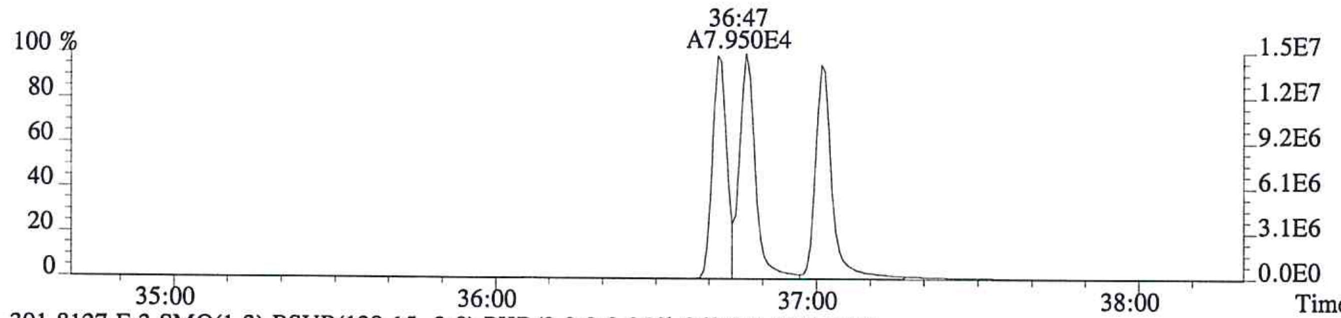
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



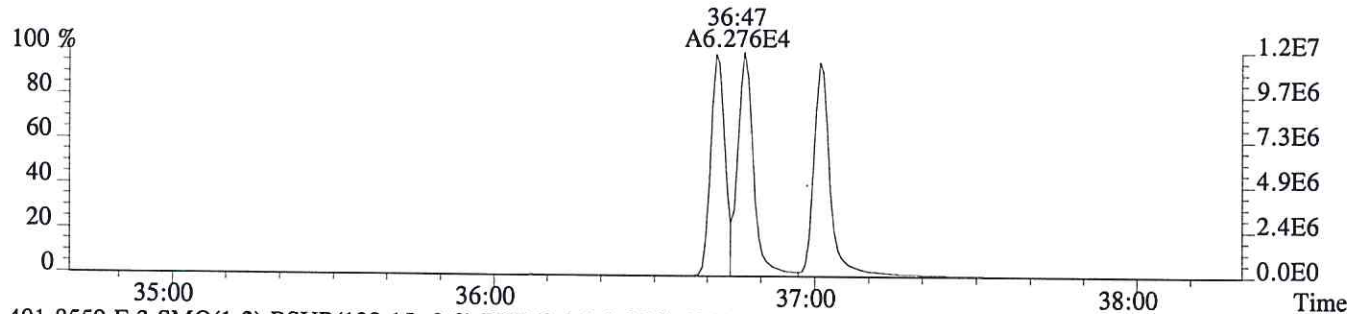
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



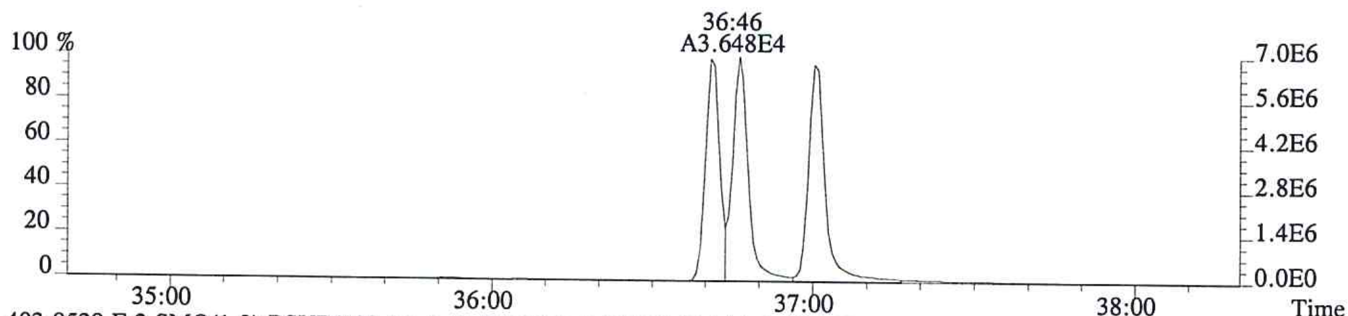
File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



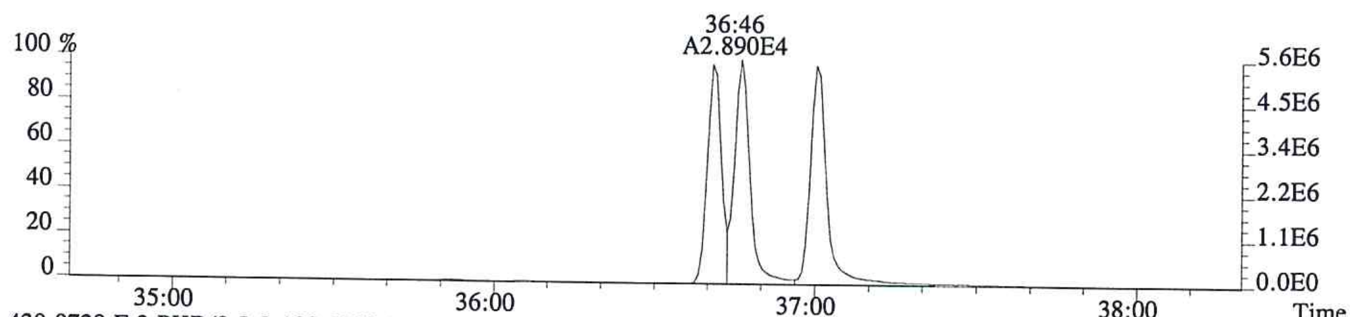
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



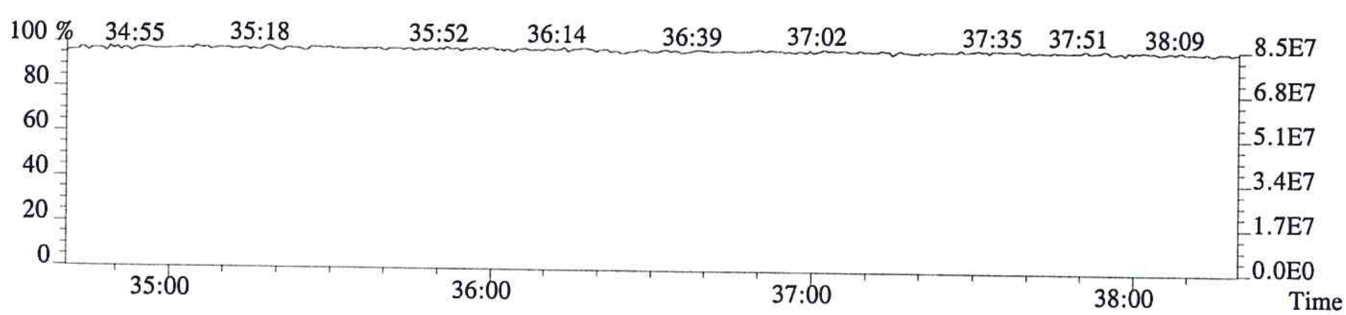
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2048.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2344.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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Sample Response Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	8.193e+04	1.059e+05	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	6.139e+05	3.954e+05	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	6.435e+04	8.269e+04	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.256e+04	5.313e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.522e+04	4.053e+04	1.61	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.412e+04	4.053e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.154e+04	4.185e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.844e+04	6.029e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	3.050e+04	3.908e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.234e+04	4.086e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.943e+04	3.156e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.476e+05				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+07	1.26e+03	1.2e+04	1.91e+07	4.39e+03	4.3e+03
3	2,3,4,7,8-PeCDF	1.21e+08	1.23e+05	9.8e+02	7.74e+07	7.44e+04	1.0e+03
11	2,3,7,8-TCDD	1.25e+07	1.75e+03	7.1e+03	1.59e+07	1.15e+03	1.4e+04
18	13C-2,3,7,8-TCDF	7.51e+06	5.53e+03	1.4e+03	9.32e+06	2.96e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.41e+04	8.4e+02	7.38e+06	7.98e+03	9.3e+02
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.41e+04	8.8e+02	7.76e+06	7.98e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	4.21e+06	1.34e+03	3.1e+03	8.22e+06	2.01e+03	4.1e+03
26	13C-1,2,3,4-TCDF	8.06e+06	5.53e+03	1.5e+03	1.01e+07	2.96e+03	3.4e+03
27	13C-2,3,7,8-TCDD	5.76e+06	8.03e+03	7.2e+02	7.36e+06	3.50e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.04e+06	8.03e+03	7.5e+02	7.69e+06	3.50e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	7.59e+06	2.36e+03	3.2e+03	6.21e+06	1.56e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.82e+07	2.23e+03	1.3e+04			

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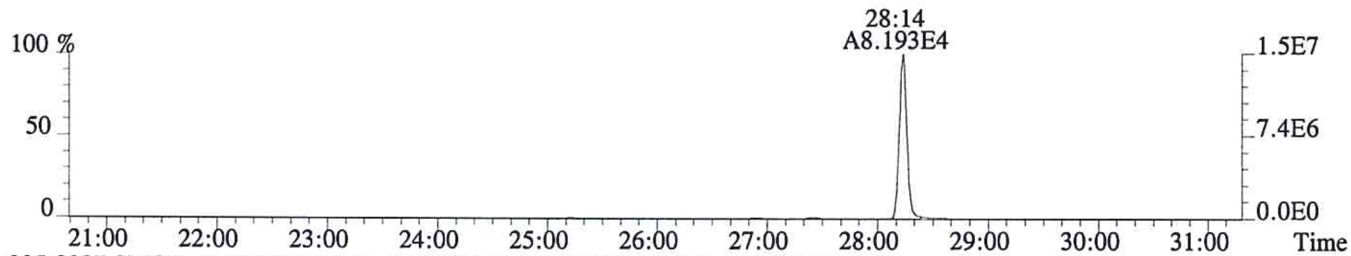
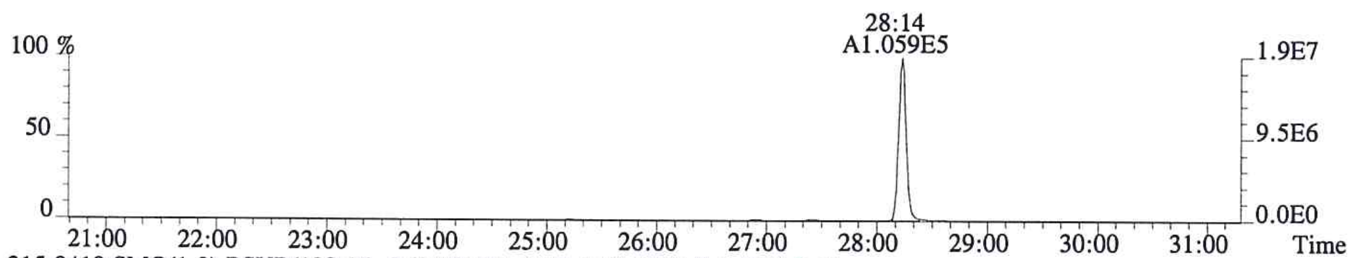
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

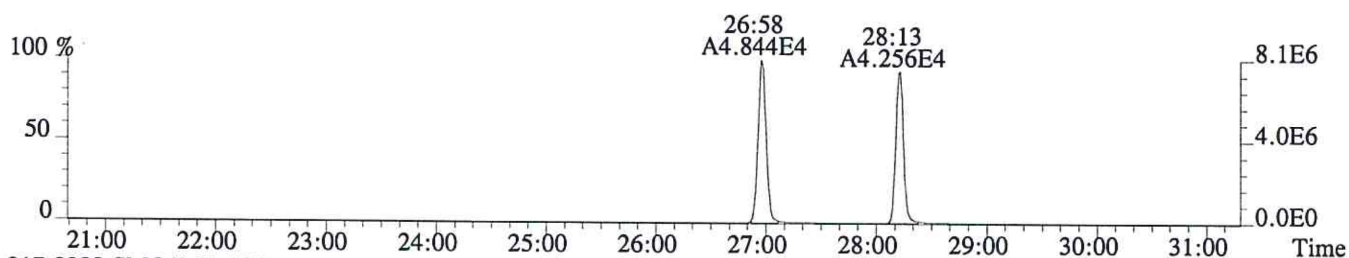
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



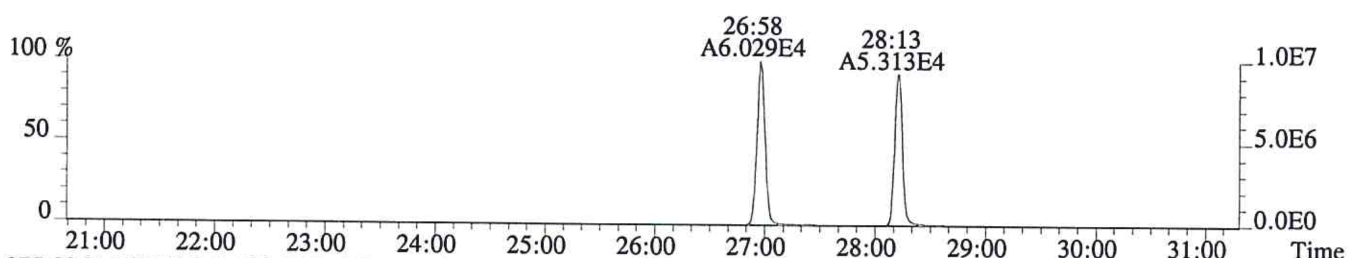
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



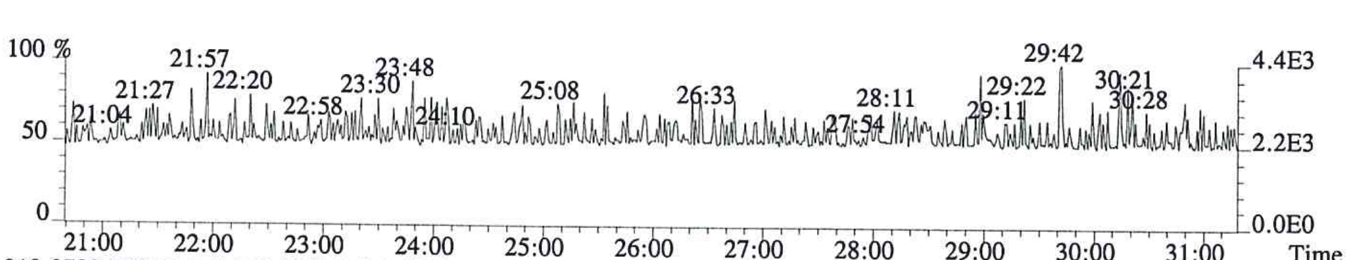
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5532.0,1.00%,F,T)



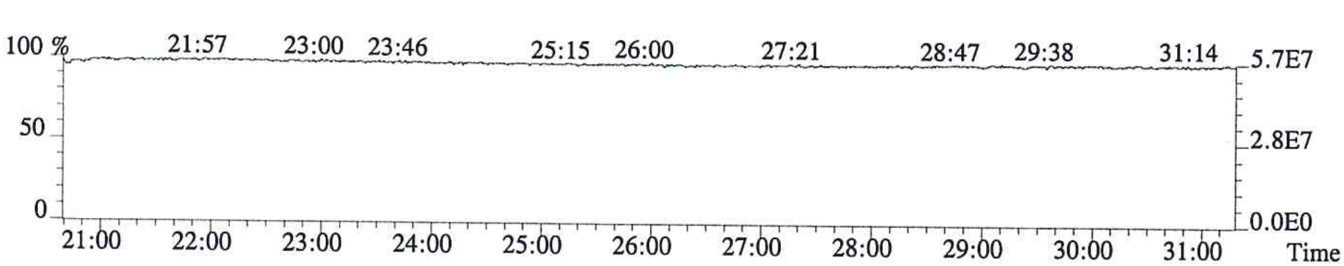
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



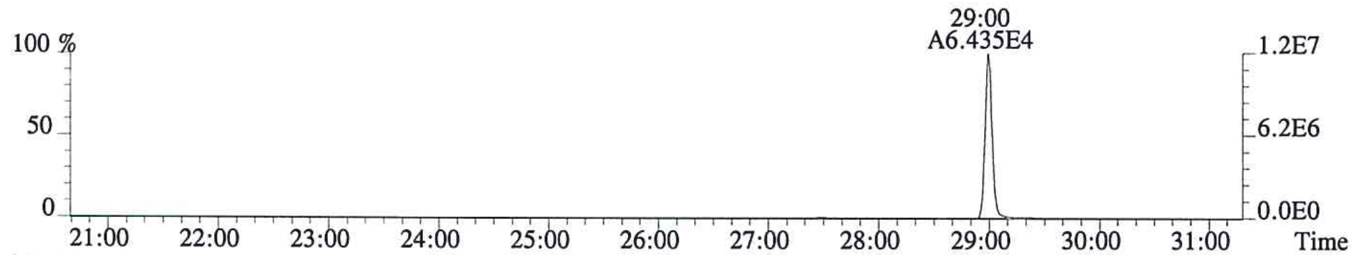
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



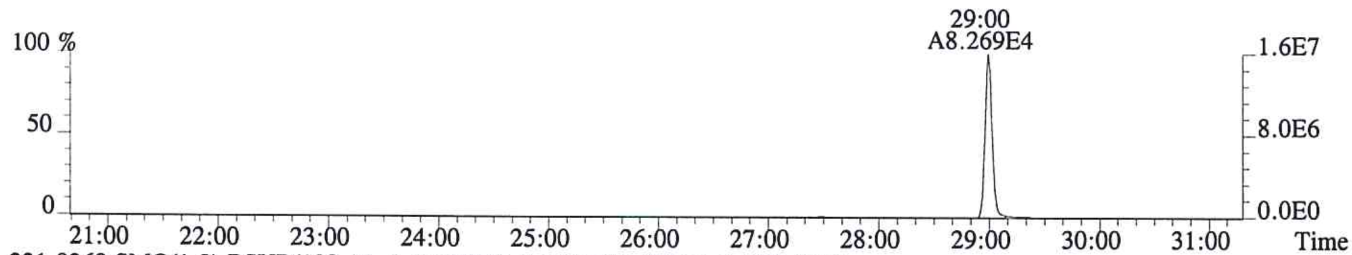
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



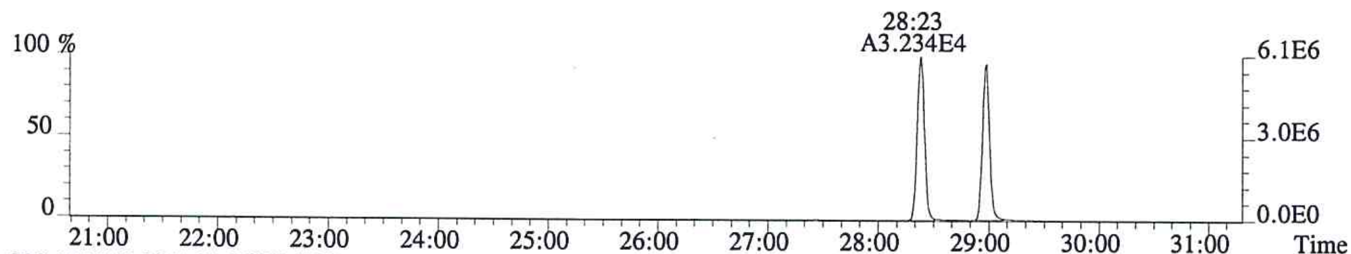
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



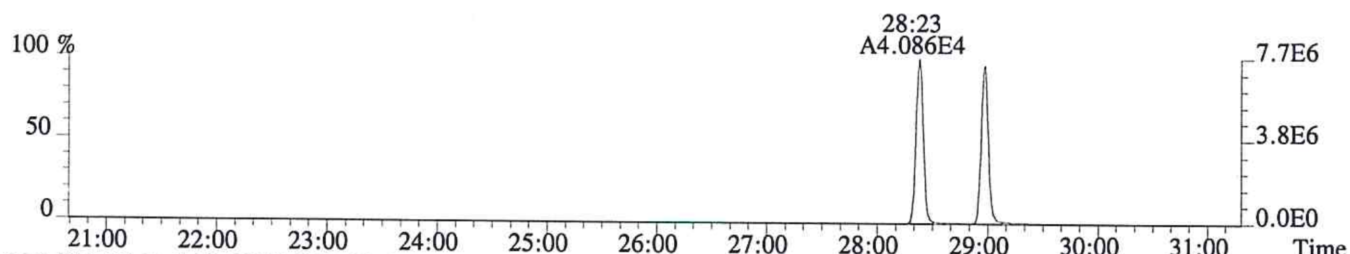
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



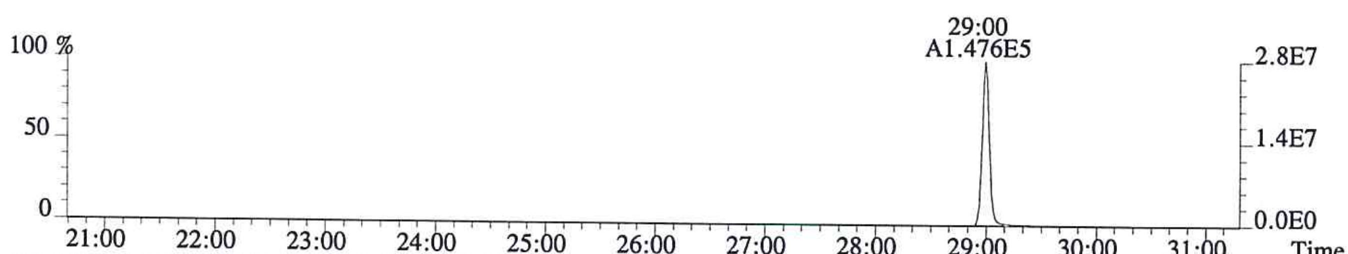
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8032.0,1.00%,F,T)



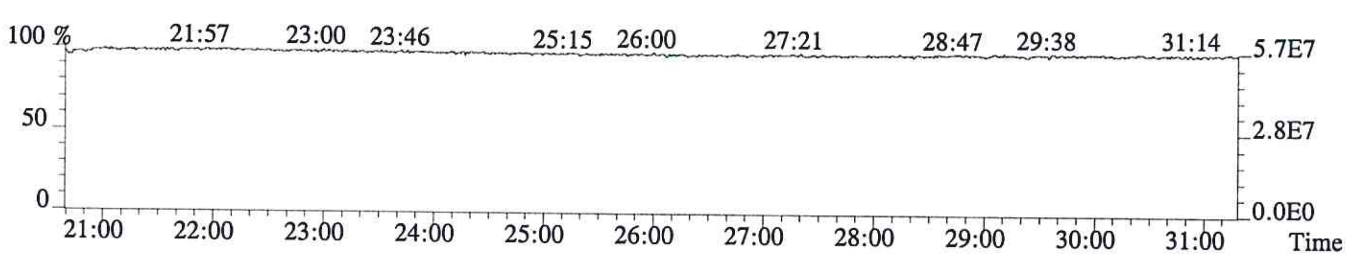
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



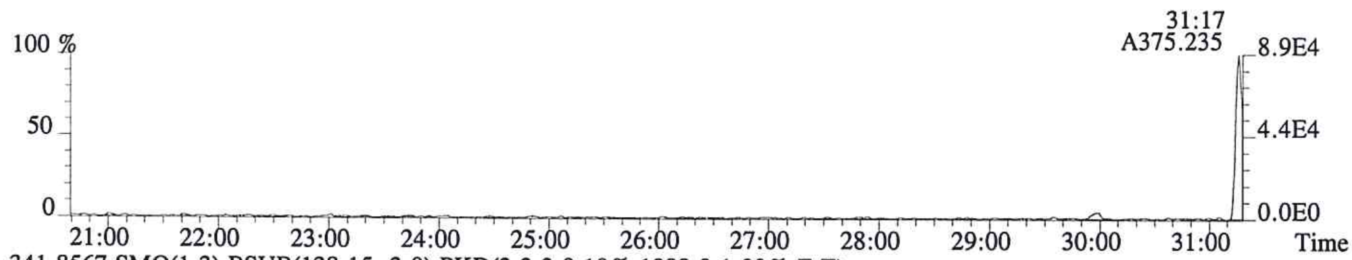
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



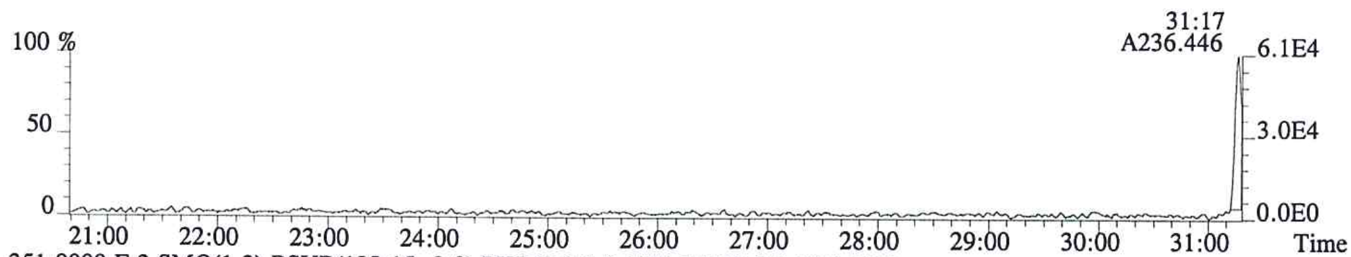
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



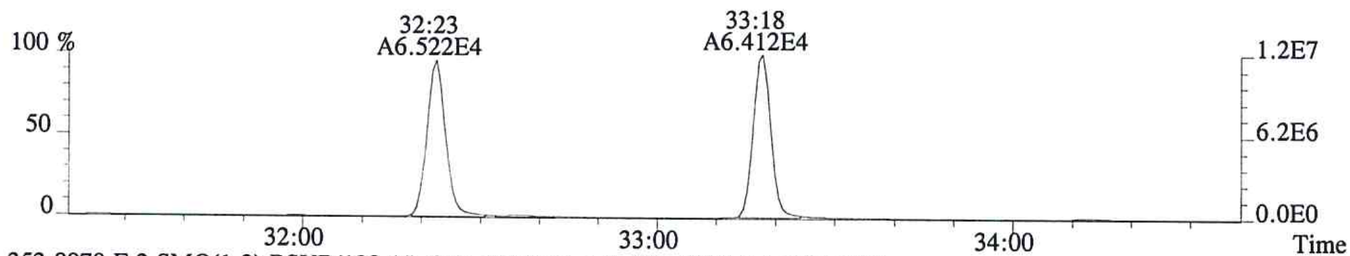
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



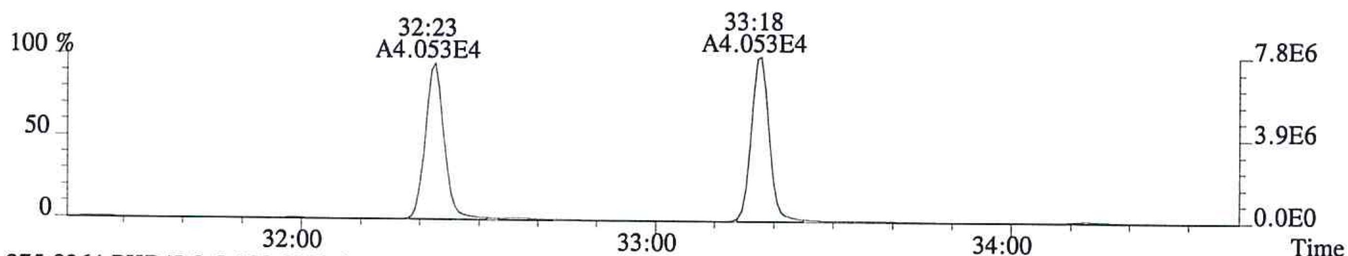
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



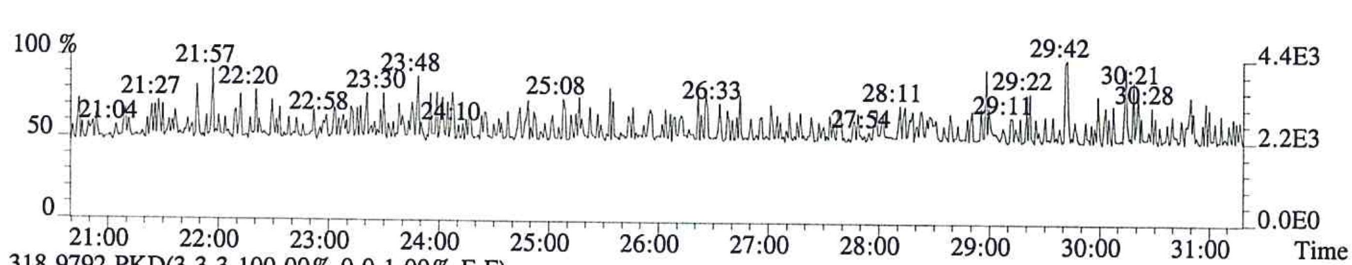
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



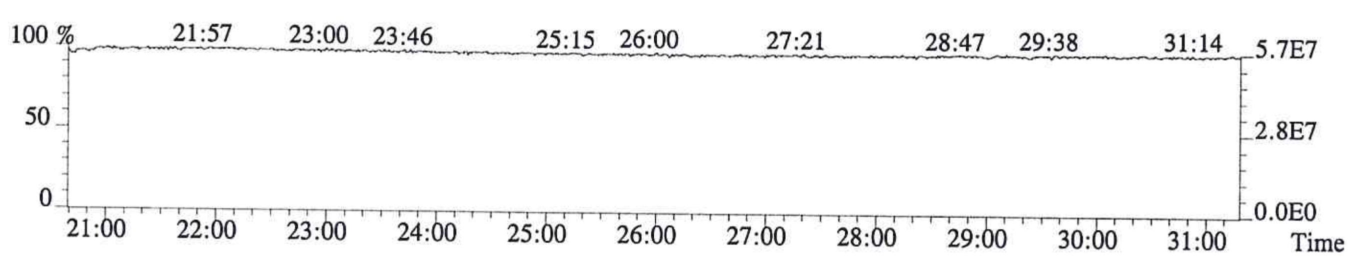
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



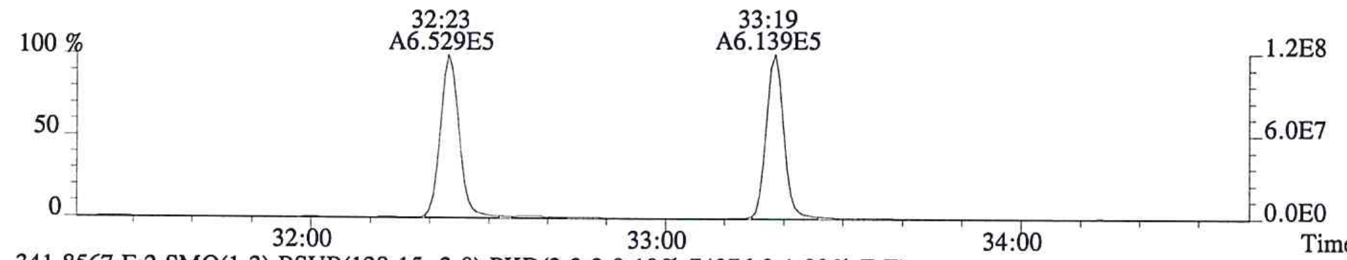
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



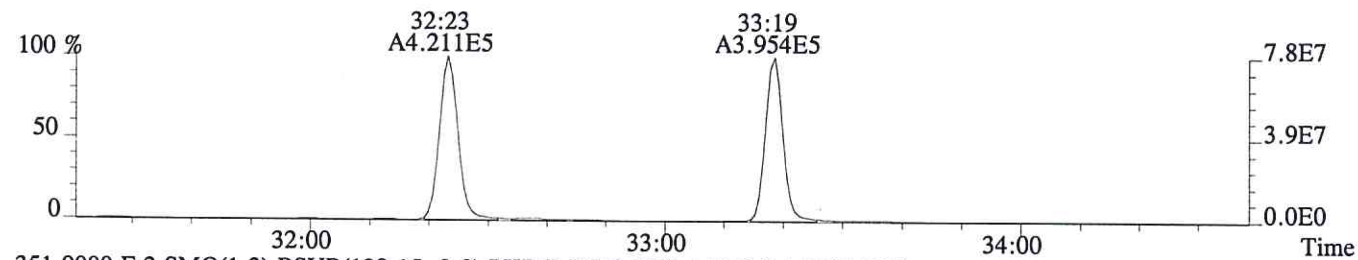
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



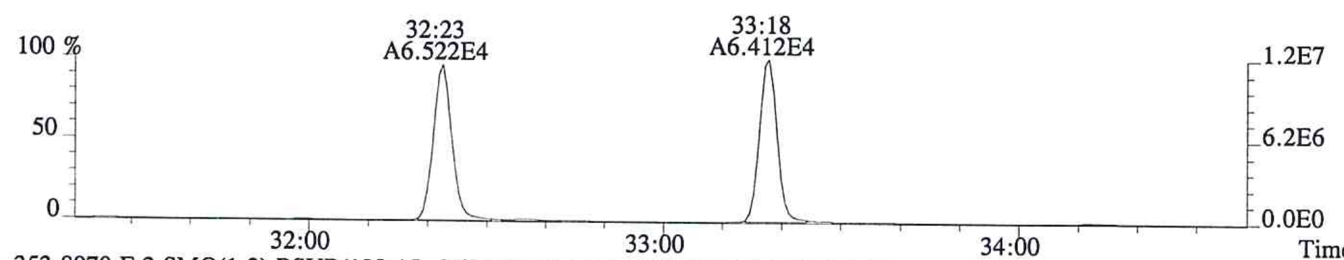
File:P603986 #1-298 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,122600.0,1.00%,F,T)



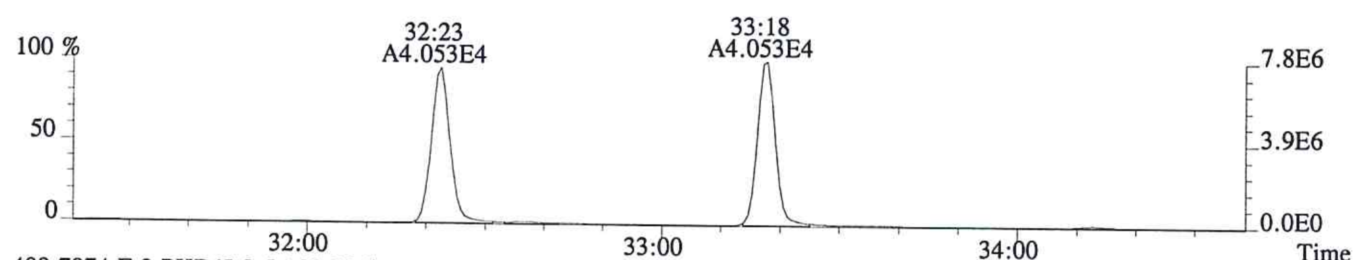
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,74376.0,1.00%,F,T)



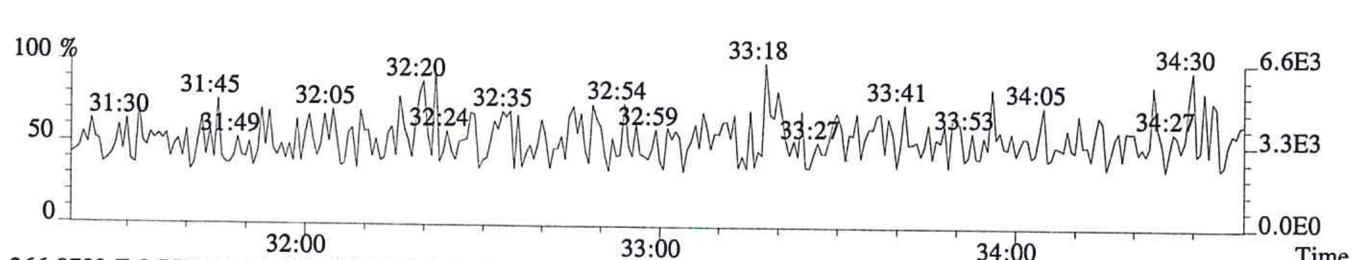
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



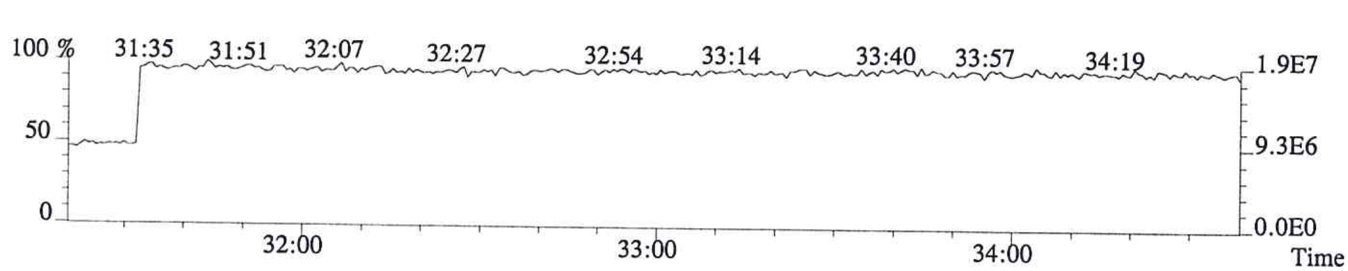
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



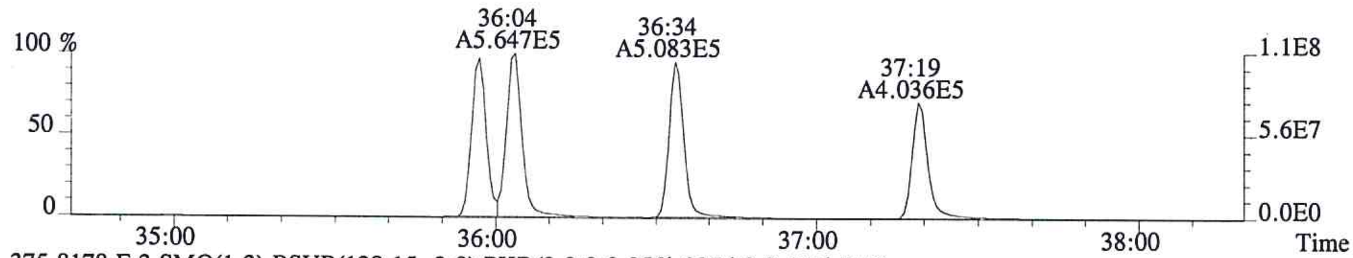
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



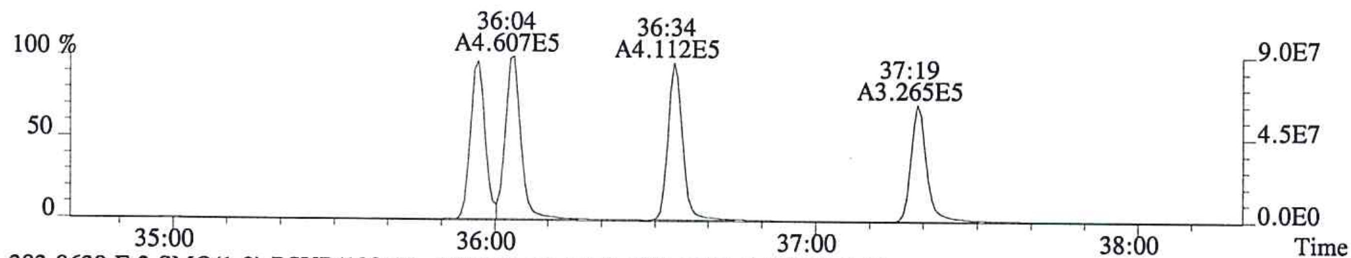
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



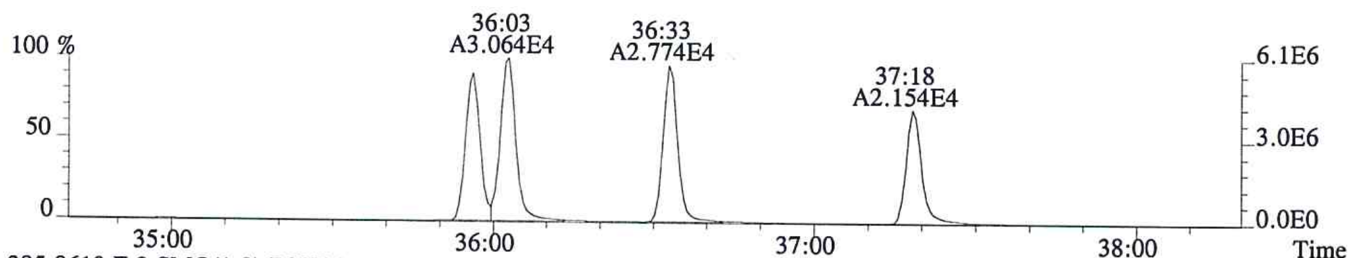
File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4228.0,0.40%,F,T)



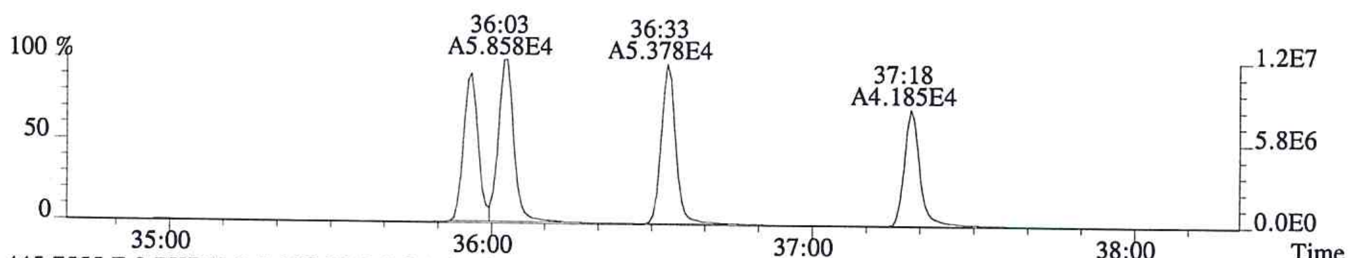
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



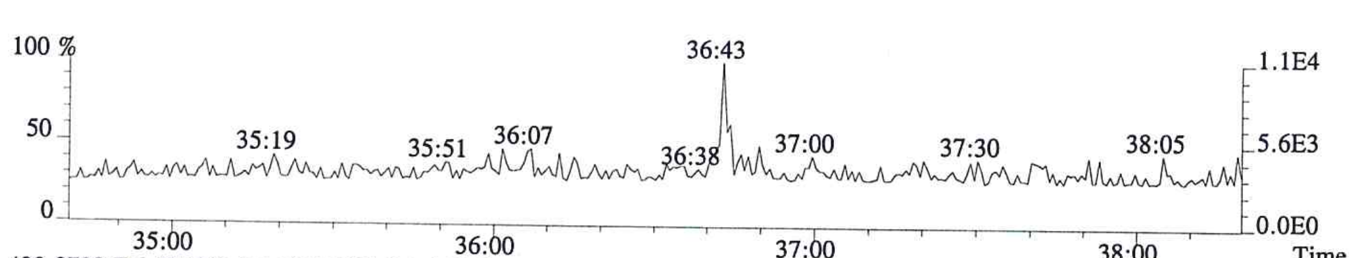
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



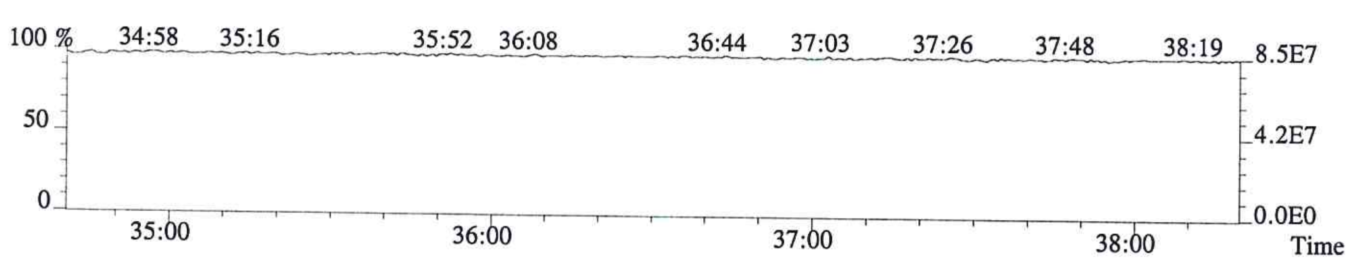
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2008.0,0.40%,F,T)



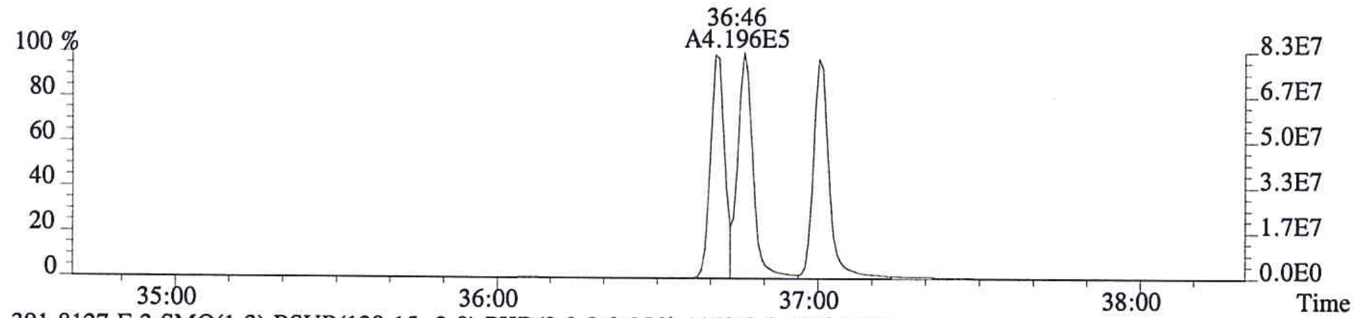
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



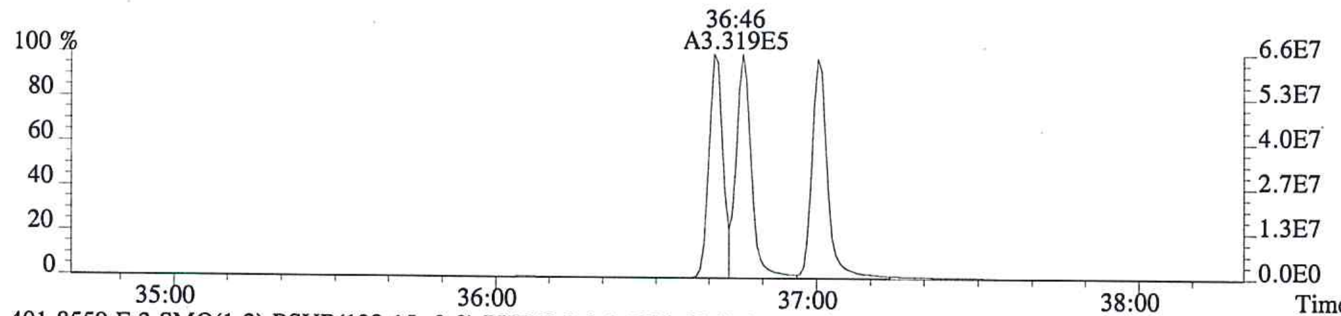
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



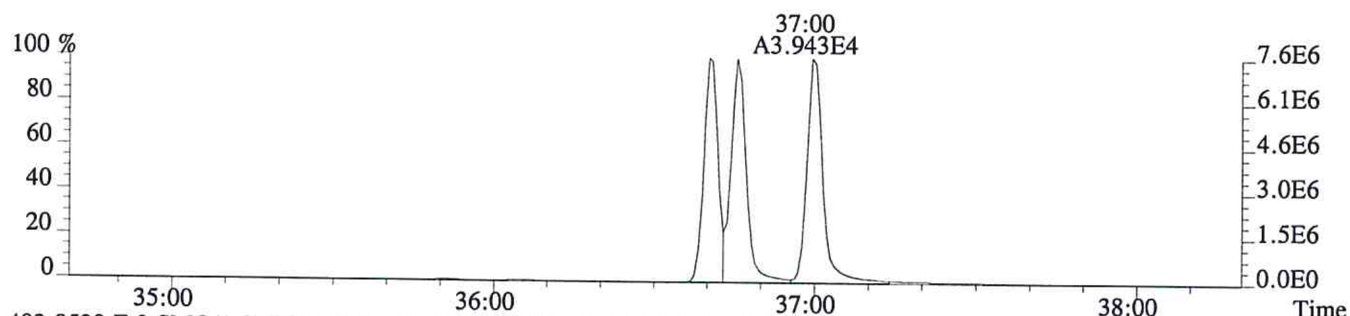
File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



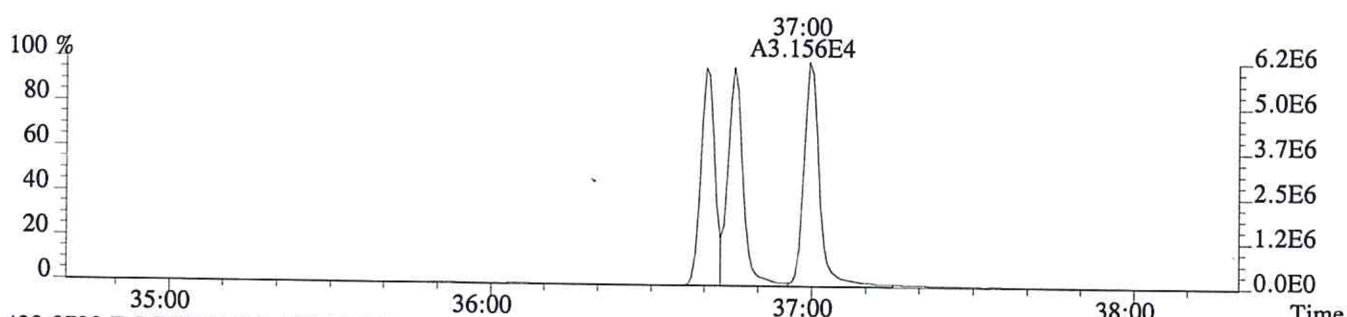
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



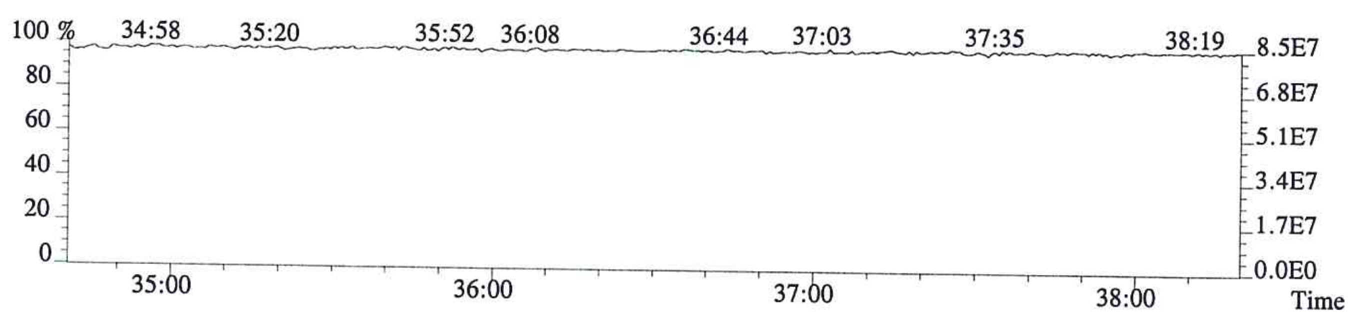
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603988 Analysis Date: 25-JUN-16 Time: 15:21:10

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	4.8	3.9 - 6.45	-4.8
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	5.0	4.2 - 6.0	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	26.6	20.5 - 30.5	6.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603988 Analysis Date: 25-JUN-16 Time: 15:21:10

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	51	41 - 60.5	2.0
13C-1,2,3,4-TCDF	M/M+2	0.80	0.65-0.89	50	35.5-70	-0.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	50	35.5-70	0.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	51	38 - 65	1.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	48	38.5 - 65	-3.0
13C-1,2,3,7,8,9-HxCDF		0.52	0.43-0.59	53	37 - 67.5	6.3
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	-0.2

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
CS3 2ND SOURCE

Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 Sample ID: CS3 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	4.564e+03	5.813e+03	0.79	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	3.377e+04	2.175e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	3.506e+03	4.480e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.824e+04	6.074e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	7.291e+04	4.564e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.894e+04	4.348e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.364e+04	4.591e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.958e+04	6.170e+04	0.80	yes	yes	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	3.515e+04	4.490e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.742e+04	4.711e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.269e+04	3.208e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.970e+03				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3 2ND SOURCE

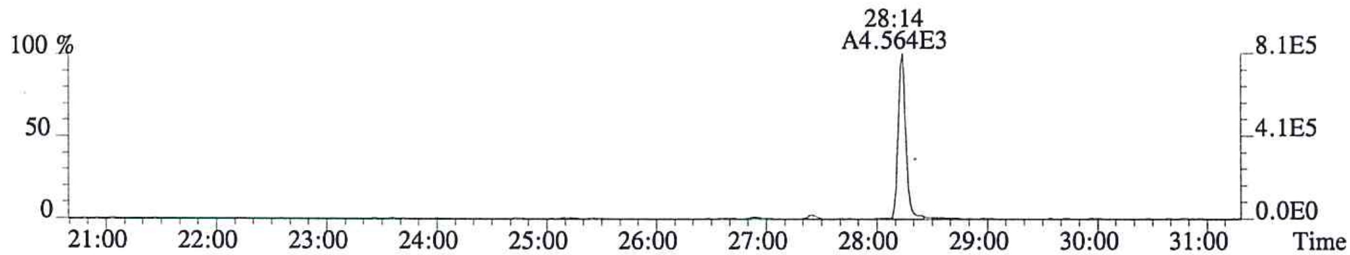
Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 LAB. ID: CS3 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.14e+05	1.32e+03	6.2e+02	1.04e+06	3.51e+03	3.0e+02
3	2,3,4,7,8-PeCDF	6.56e+06	1.10e+04	6.0e+02	4.19e+06	7.55e+03	5.6e+02
11	2,3,7,8-TCDD	6.55e+05	1.31e+03	5.0e+02	8.28e+05	1.41e+03	5.9e+02
18	13C-2,3,7,8-TCDF	8.37e+06	4.79e+03	1.7e+03	1.05e+07	2.74e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.26e+06	1.14e+04	7.3e+02
20	13C-2,3,4,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.28e+06	1.14e+04	7.3e+02
24	13C-1,2,3,7,8,9-HxCDF	4.54e+06	9.04e+02	5.0e+03	8.79e+06	3.13e+03	2.8e+03
26	13C-1,2,3,4-TCDF	8.22e+06	4.79e+03	1.7e+03	1.03e+07	2.74e+03	3.7e+03
27	13C-2,3,7,8-TCDD	6.41e+06	8.76e+03	7.3e+02	8.18e+06	3.96e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.95e+06	8.76e+03	7.9e+02	8.65e+06	3.96e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.12e+06	2.13e+03	3.8e+03	6.38e+06	1.43e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	1.49e+06	1.75e+03	8.5e+02			

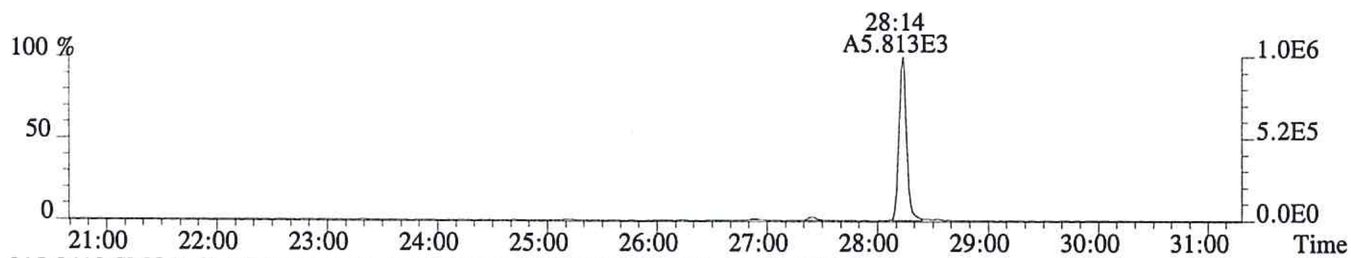
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

www.alsglobal.com

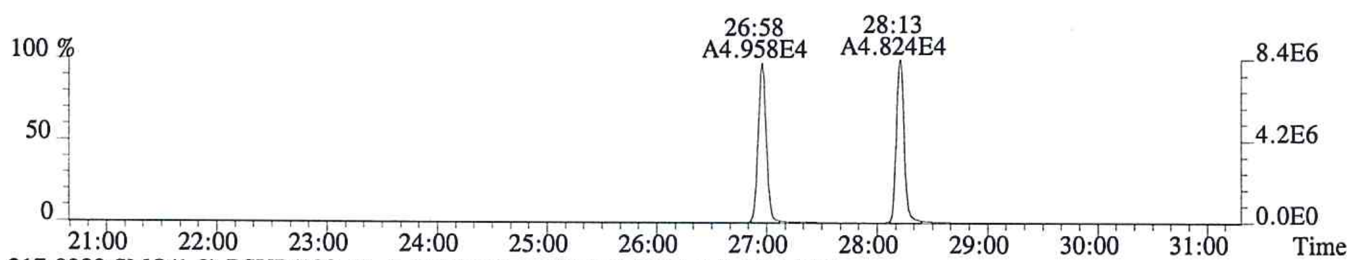
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



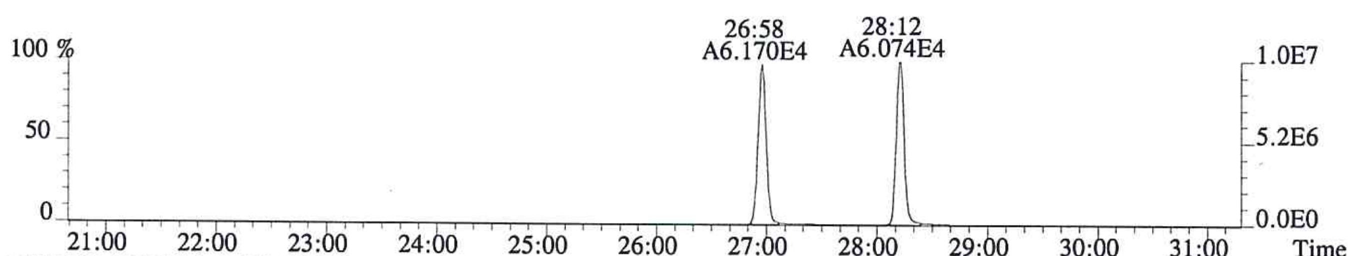
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3508.0,1.00%,F,T)



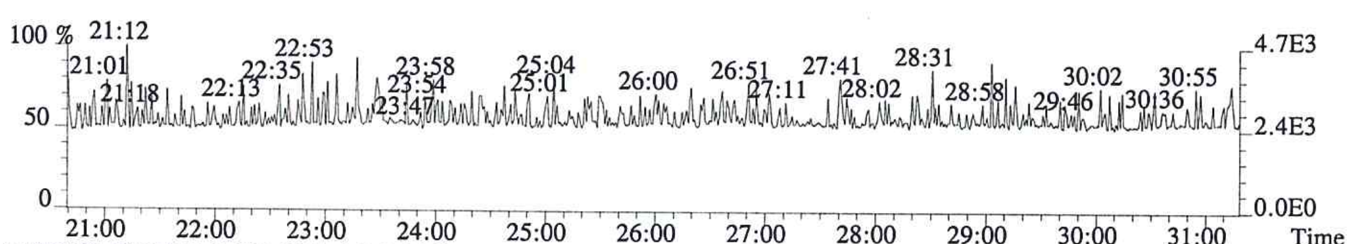
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4788.0,1.00%,F,T)



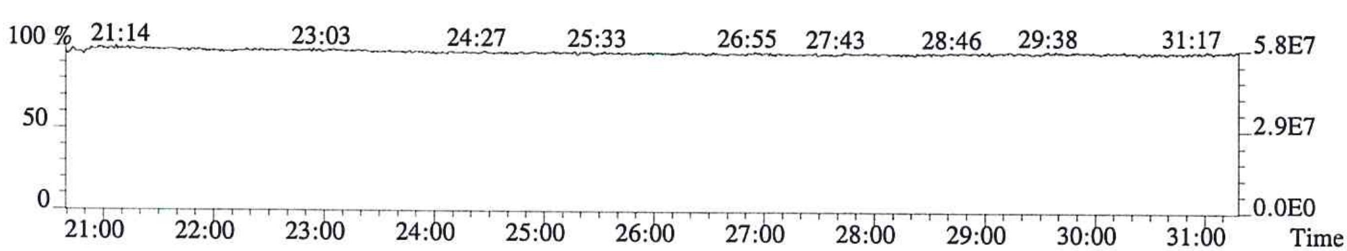
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

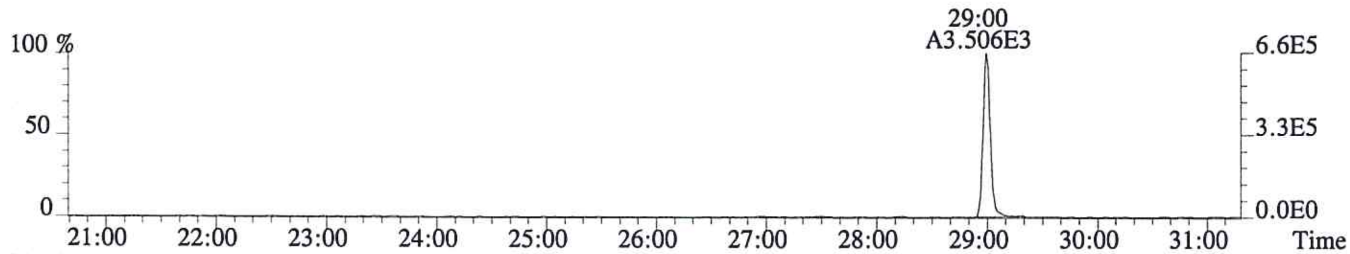


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

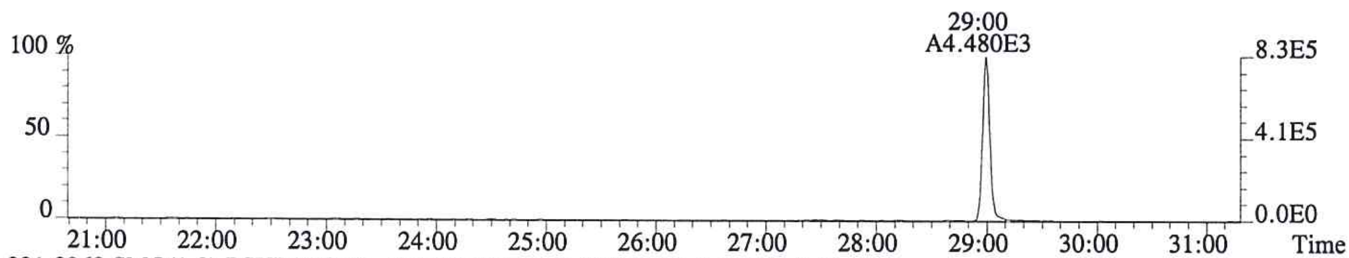


File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE

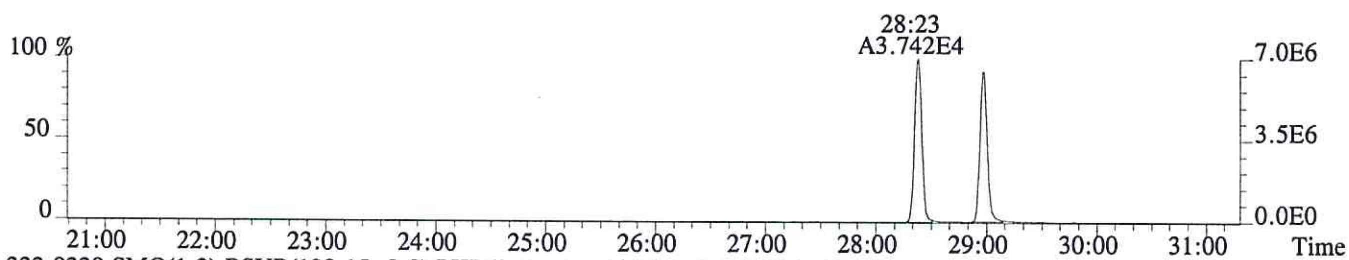
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



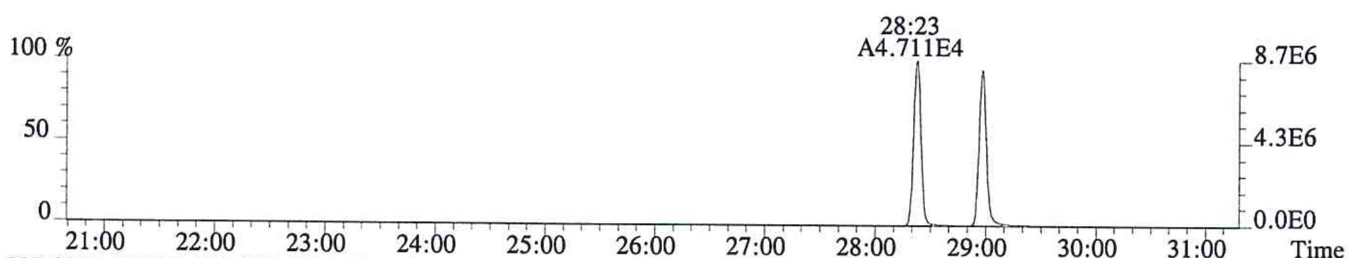
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



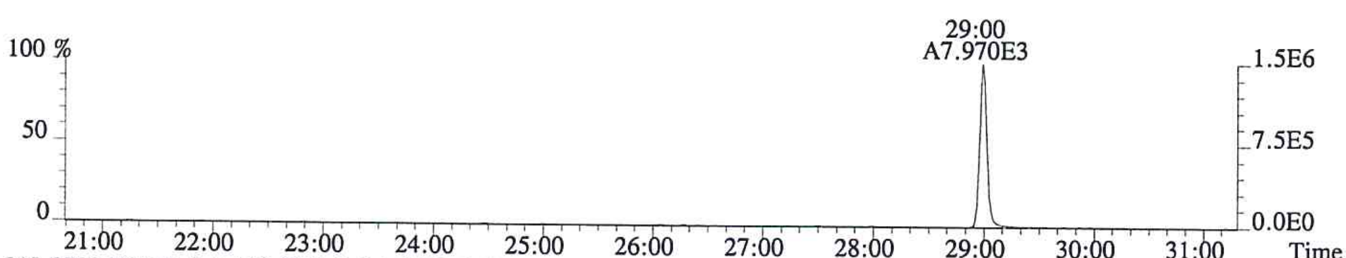
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8760.0,1.00%,F,T)



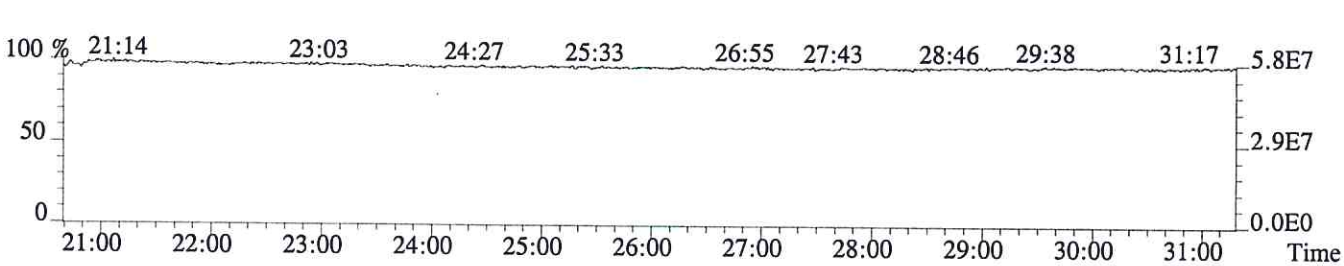
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3964.0,1.00%,F,T)



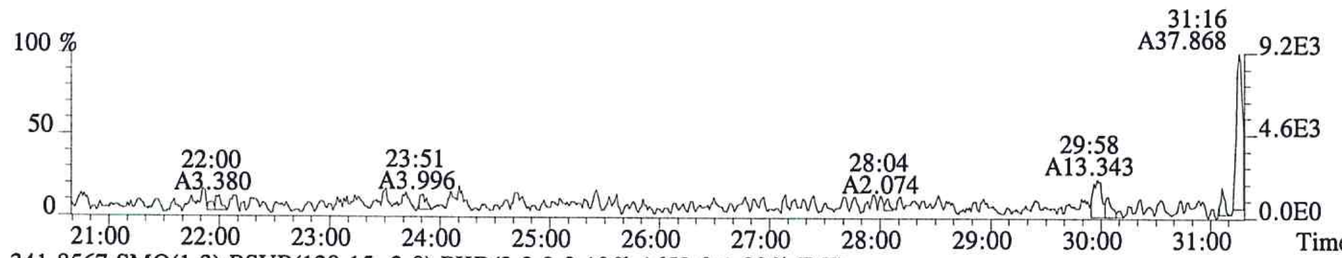
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



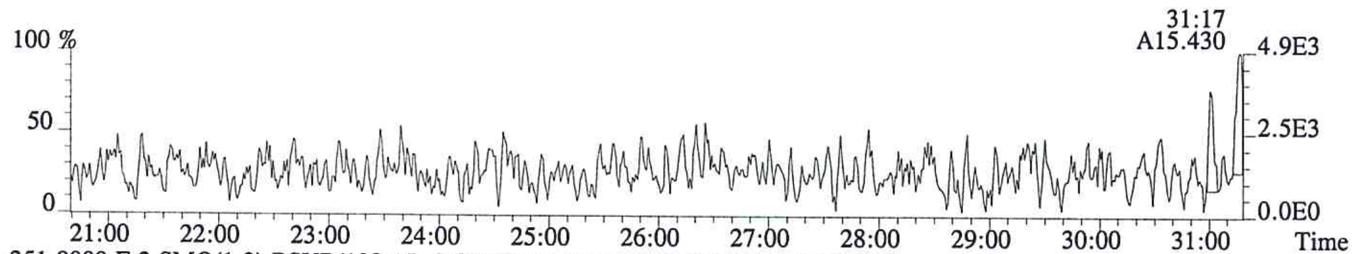
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



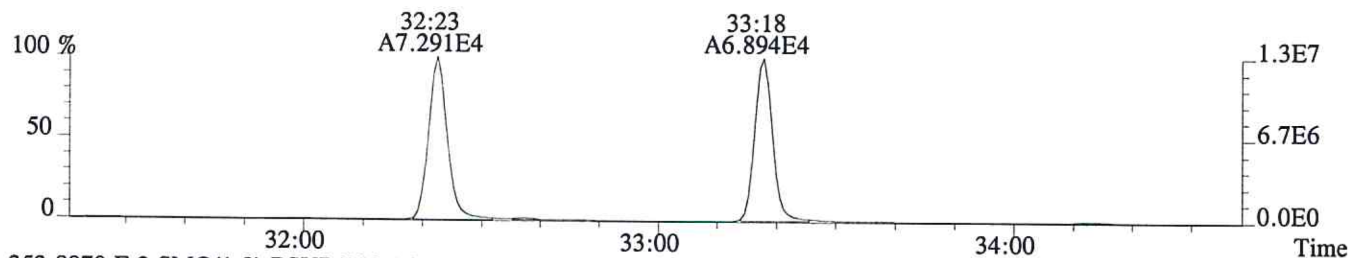
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



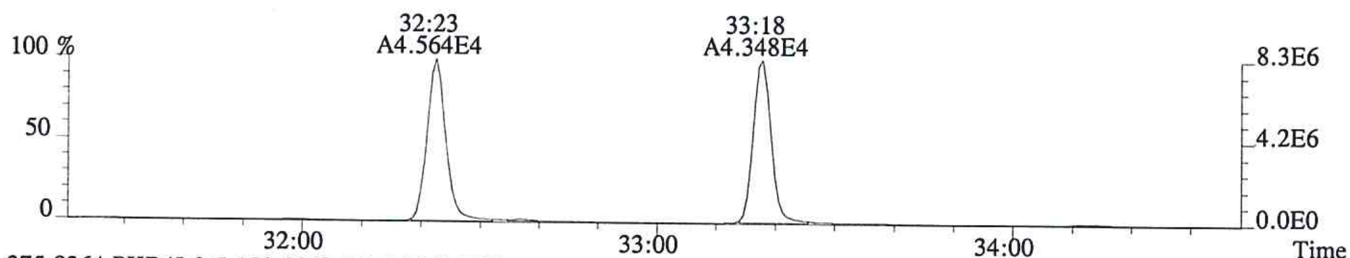
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



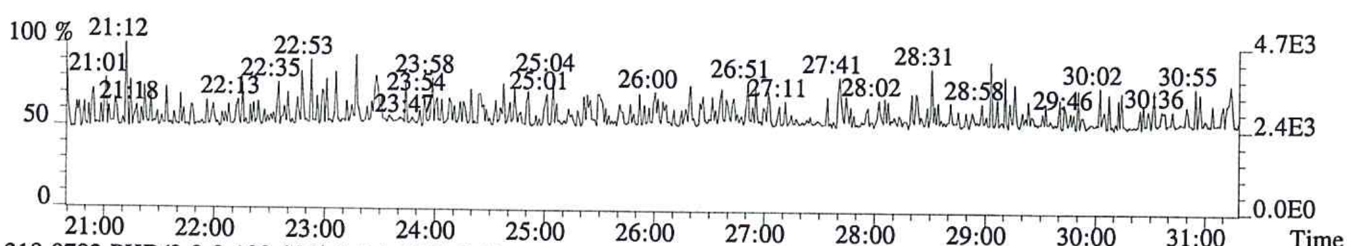
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15676.0,1.00%,F,T)



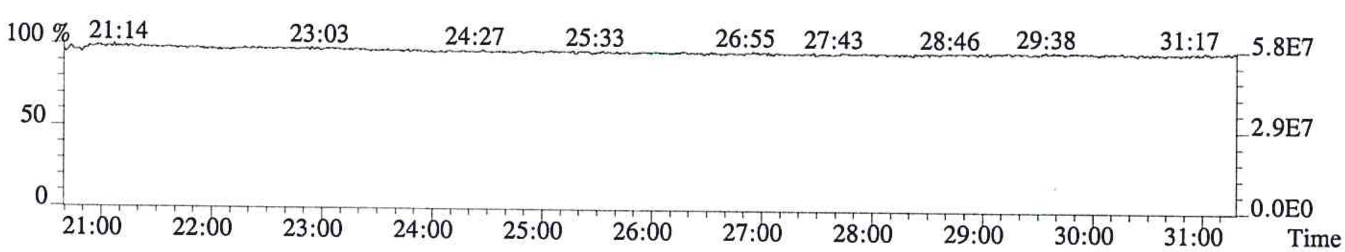
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11360.0,1.00%,F,T)



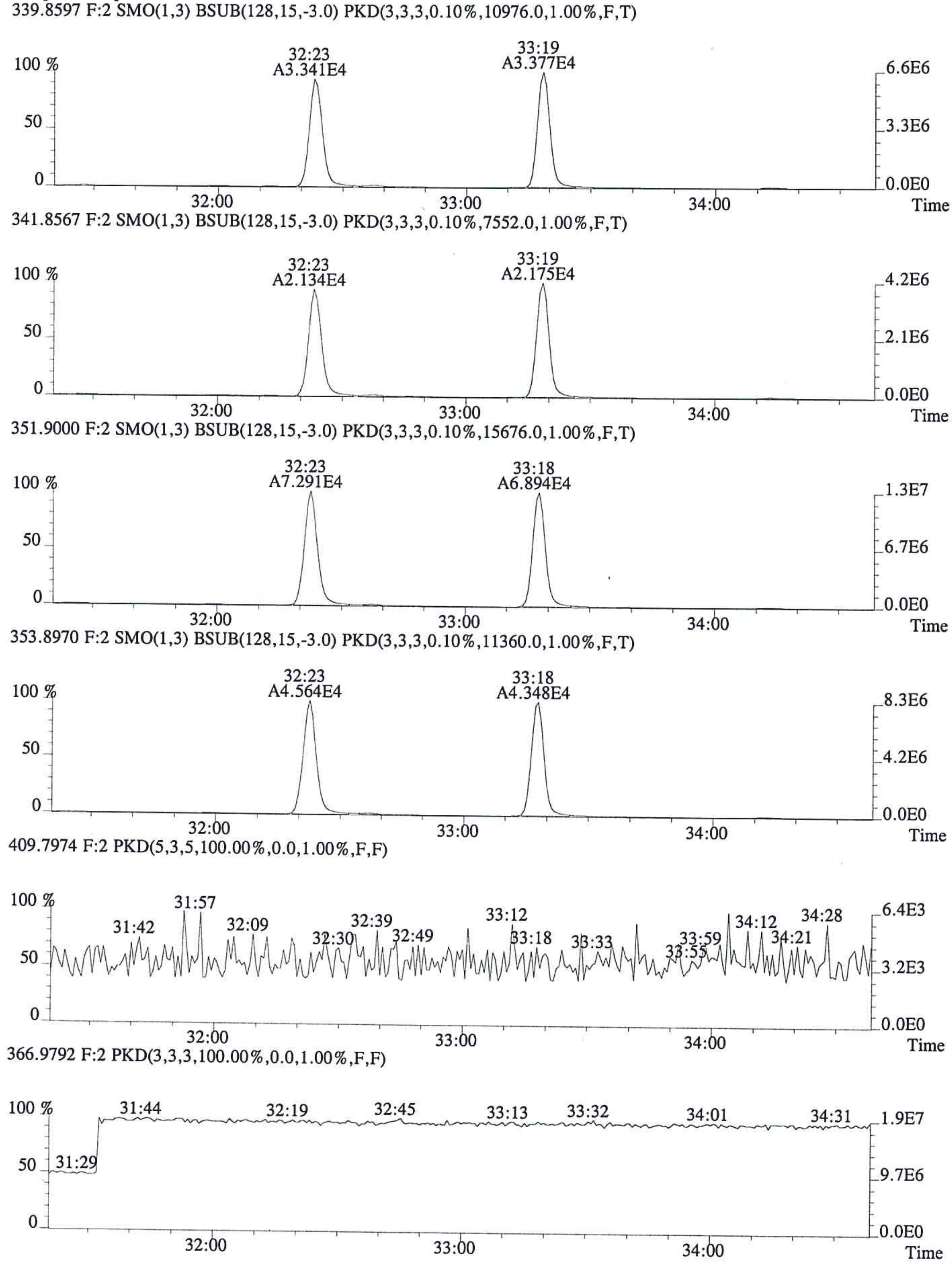
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



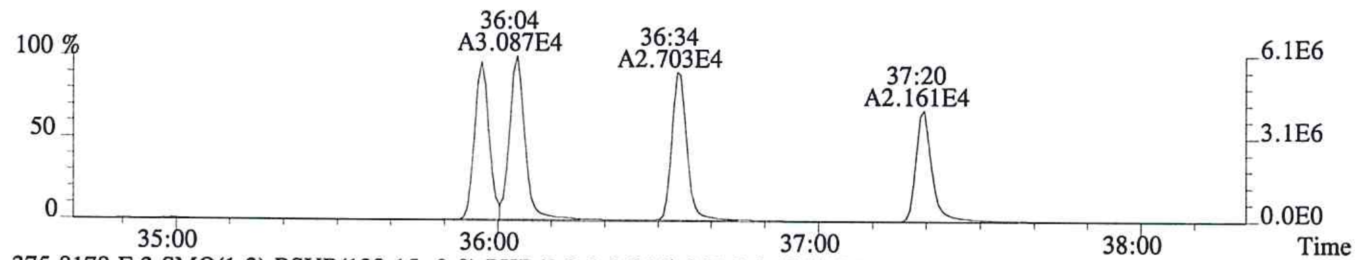
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



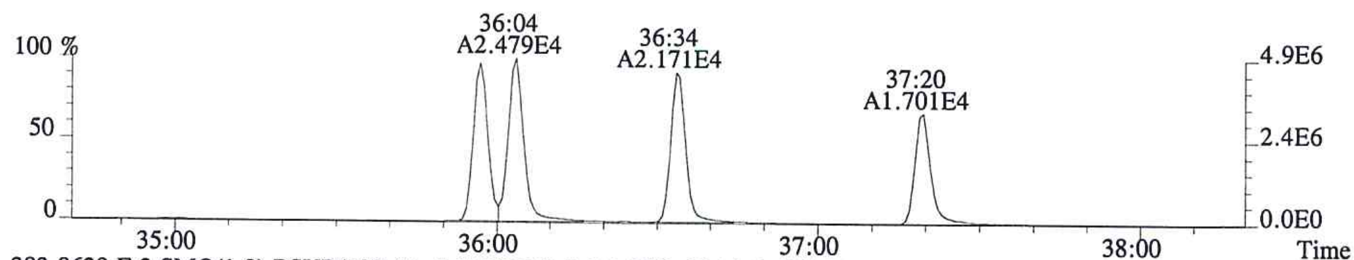
File:P603988 #1-298 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE



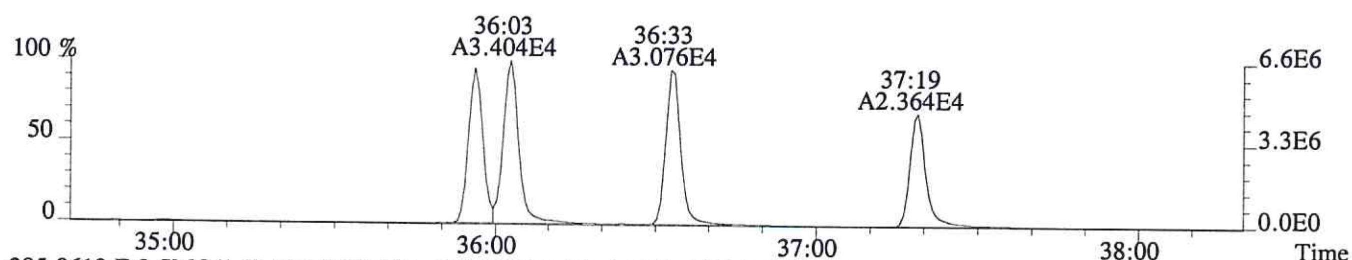
File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



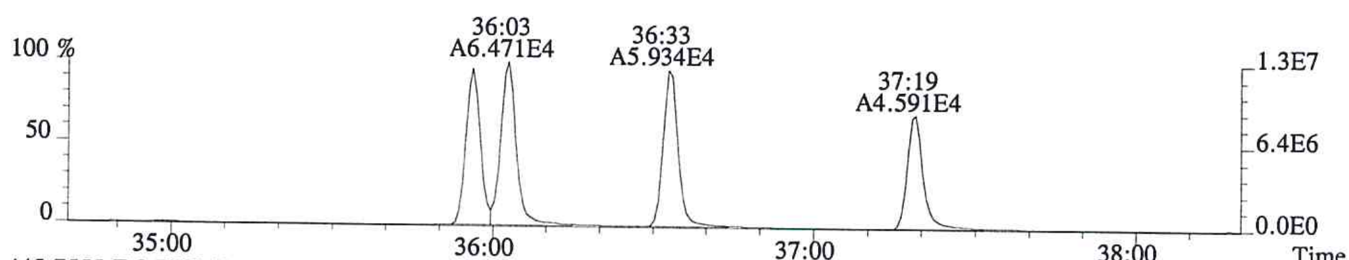
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



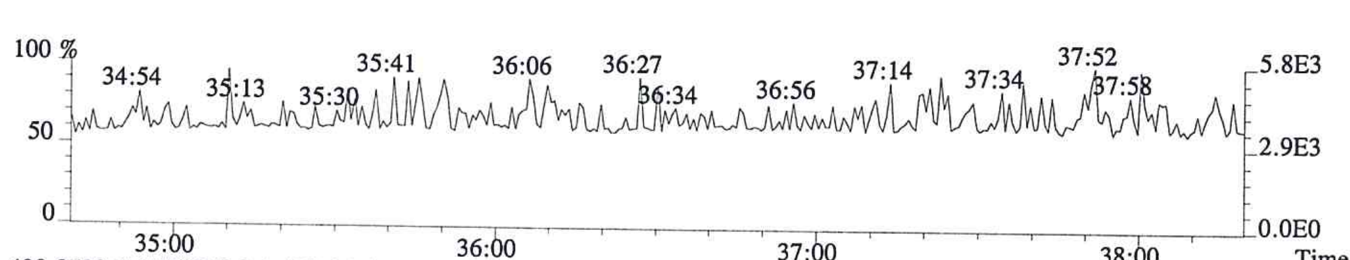
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



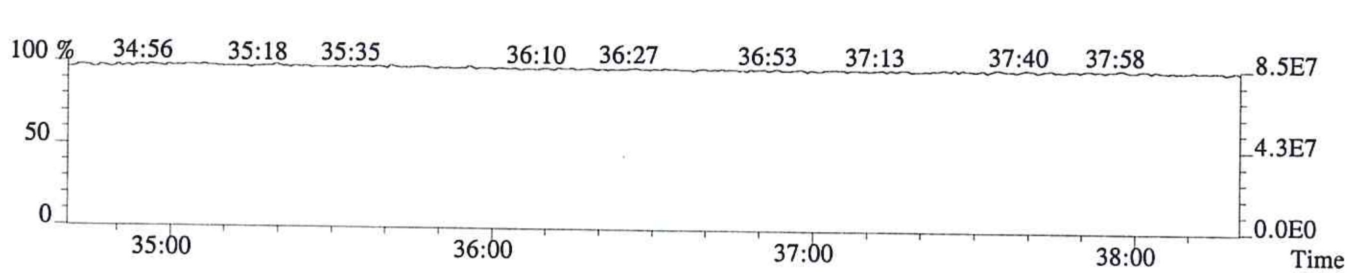
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



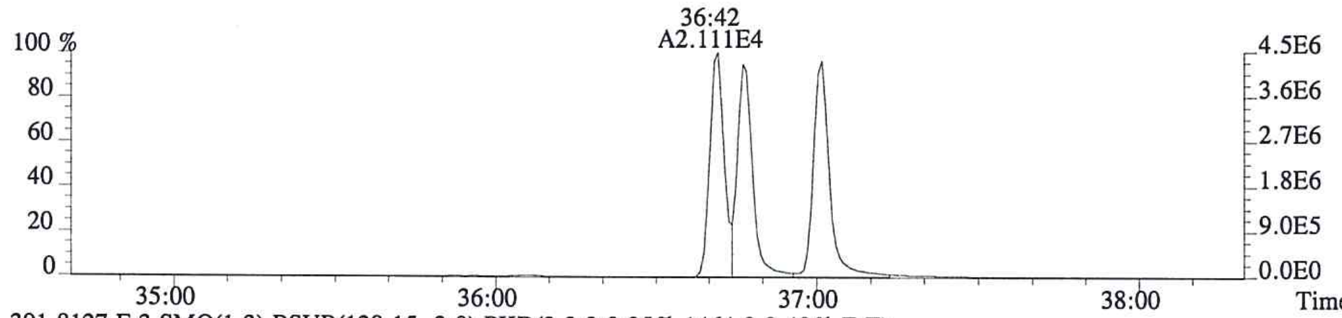
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



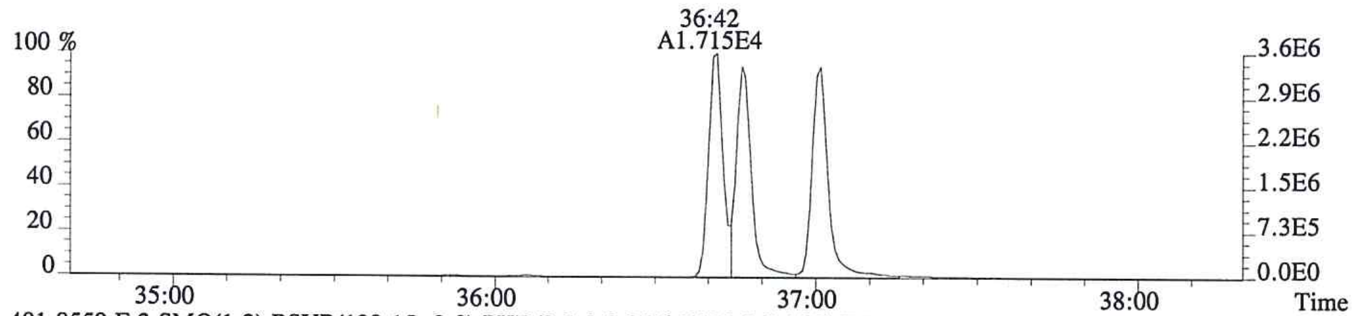
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



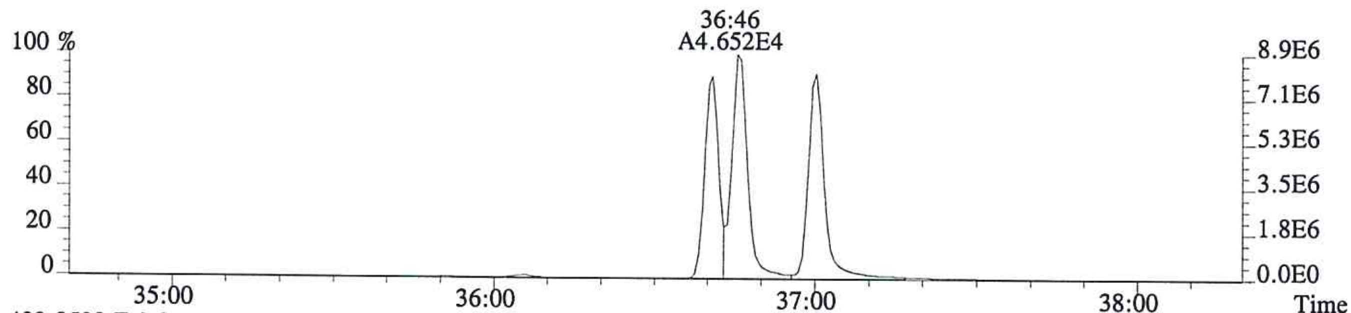
File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



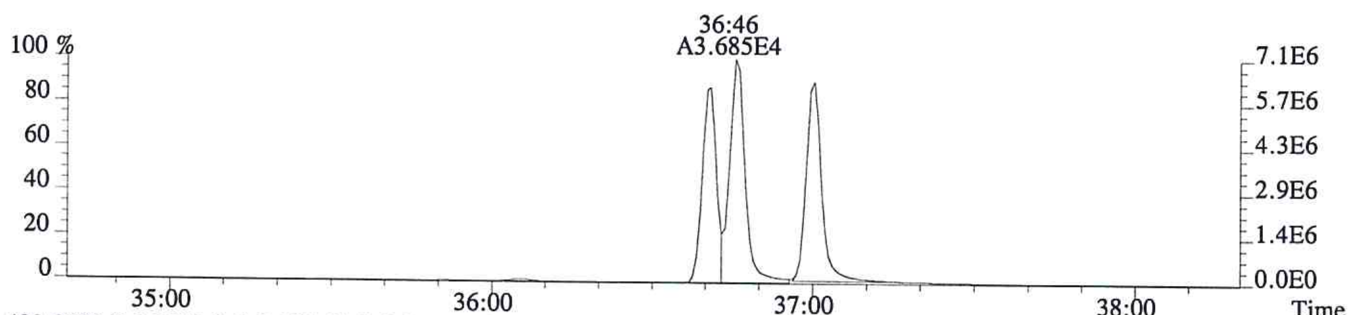
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



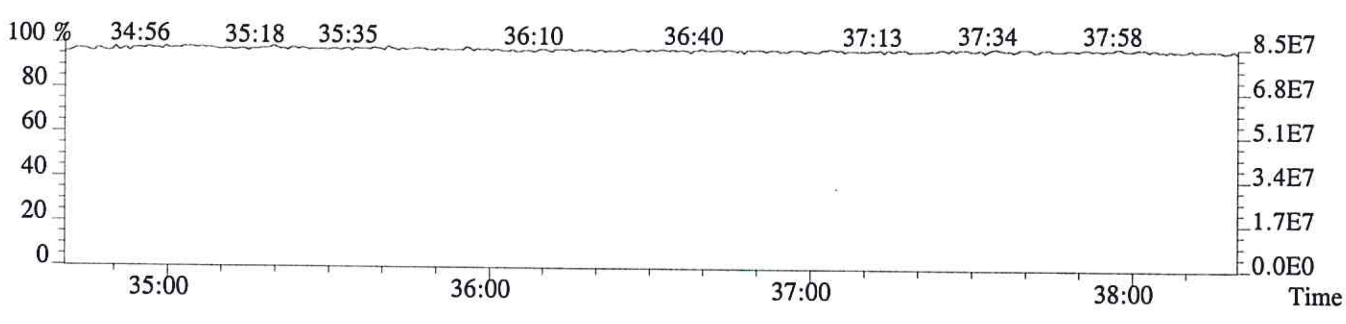
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



July 07, 2016

Service Request No:E1600326

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: San Jacinto

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory April 08, 2016
For your reference, these analyses have been assigned our service request number **E1600326.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	Integral Consulting, Incorporated	**Service Request No.:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Received:**	4/8/16
Sample Matrix:	SPME Fibers (Non-aqueous liquid)		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirteen SPME fibers were received for analysis at ALS Environmental – Houston HRMS on 4/8/16.

The samples were received at 17.6°C in good condition and are consistent with the accompanying chain of custody form. The client was contacted and allowed the continuation of analysis. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Custody seals were not present on the cooler upon arrival at the laboratory.

Extraction

The samples in batch EQ1600219 were spiked with the 1613B full list labeled standard. The samples in batch EQ1600222 were spiked with 8290 full list labeled standards. All samples were shaken for 2 minutes with 60 ml of hexane. The solvent was decanted to a new jar and rinsed. Samples were then spiked with M23 Alternate standard which only has 1,2,3,7,8,9 HxCDF.

Data Validation Notes and Discussion

Precision and Accuracy

EQ1600219: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

EQ1600220: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1600326-001	03162016SJGW1	3/16/2016	0900
E1600326-002	04072016SJGW1	4/7/2016	0900
E1600326-003	04072016SJGW2	4/7/2016	0900
E1600326-004	04072016SJGW10	4/7/2016	0930
E1600326-005	04072016SJGW11	4/7/2016	0930
E1600326-006	04072016SJGW12	4/7/2016	0930
E1600326-007	04072016SJGW13	4/7/2016	0930
E1600326-008	04072016SJGW14	4/7/2016	0930
E1600326-009	04072016SJGW15	4/7/2016	0930
E1600326-010	04072016SJGW16	4/7/2016	1000
E1600326-011	04072016SJGW17	4/7/2016	1000
E1600326-012	04072016SJGW18	4/7/2016	1000

Service Request Summary

Folder #:	**E1600326**	Project Chemist:	Arthi Kodur
Client Name:	Integral Consulting, Incorporated	Originating Lab:	HOUSTON
Project Name:	San Jacinto	Logged By:	AKODUR
Project Number:	150557-01.01	Date Received:	04/08/16
		Internal Due Date:	5/11/2016
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA	QAP:	LAB QAP
		Qualifier Set:	HRMS Qualifier Set
		Formset:	Lab Standard
		Merged?:	N
Phone Number:	360-705-3534	Report to MDL?:	N
Cell Number:		P.O. Number:	
Fax Number:		EDD:	No EDD Specified
E-mail:	chutchings@integral-corp.com		

12 -N/A N/A

Location: E-Disposed, EHRMS-WIC 3B

Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON Dioxins Furans/1613B
E1600326-001	03162016SJGW1	NonAq Liquid	03/16/16 0900	IV
E1600326-002	04072016SJGW1	NonAq Liquid	04/07/16 0900	IV
E1600326-003	04072016SJGW2	NonAq Liquid	04/07/16 0900	IV
E1600326-004	04072016SJGW10	NonAq Liquid	04/07/16 0930	IV
E1600326-005	04072016SJGW11	NonAq Liquid	04/07/16 0930	IV
E1600326-006	04072016SJGW12	NonAq Liquid	04/07/16 0930	IV
E1600326-007	04072016SJGW13	NonAq Liquid	04/07/16 0930	IV
E1600326-008	04072016SJGW14	NonAq Liquid	04/07/16 0930	IV
E1600326-009	04072016SJGW15	NonAq Liquid	04/07/16 0930	IV
E1600326-010	04072016SJGW16	NonAq Liquid	04/07/16 1000	IV
E1600326-011	04072016SJGW17	NonAq Liquid	04/07/16 1000	IV
E1600326-012	04072016SJGW18	NonAq Liquid	04/07/16 1000	IV

Printed 7/7/2016 5:38:26 PM

Service Request Summary

Folder #:	**E1600326**	Project Chemist:	Arthi Kodur	12 -N/A N/A	
Client Name:	Integral Consulting, Incorporated	Originating Lab:	HOUSTON	**Location:**	E-Disposed, EHRMS-WIC 3B
Project Name:	San Jacinto	Logged By:	AKODUR	**Pressure Gas:**	
Project Number:	150557-01.01	Date Received:	04/08/16		
		Internal Due Date:	5/11/2016		
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA	QAP:	LAB QAP		
		Qualifier Set:	HRMS Qualifier Set		
		Formset:	Lab Standard		
		Merged?:	N		
Phone Number:	360-705-3534	Report to MDL?:	N		
Cell Number:		P.O. Number:			
Fax Number:		EDD:	No EDD Specified		
E-mail:	chutchings@integral-corp.com				

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	3	E1600326-010-013 on hold (ak 4/20/16)
Semivoa GCMS	Dioxins Furans/1613B	9	E1600326-001-003: native TCDD/TCDF,23478 PeCDF (ak 4/20/16) do not extract till curve is ready, talk to Arthi before starting anything (ak 5/2/16)

Superset Summary

Service Request: E1600326 **SuperSet Reference:** 16-0000383419 rev 00

Analytical Method: **1613B**

Calibrations: 06/25/16

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P603995	P603991	P603993	E1600326-001
P603996	P603991	P603993	E1600326-002
P603997	P603991	P603993	E1600326-003
P603998	P603991	P604007	E1600326-004
P603999	P603991	P604007	E1600326-005
P604000	P603991	P604007	E1600326-006
P604001	P603991	P604007	E1600326-007
P604010	P604006	P604007	E1600326-008
P604011	P604006	P604007	E1600326-009
P603993	P603991	P603993	EQ1600219-01
P604002	P603991	P603993	EQ1600219-02
P604003	P603991	P603993	EQ1600219-03
P604007	P604006	P604007	EQ1600220-01
P604016	P604006	P604007	EQ1600220-02
P604017	P604006	P604007	EQ1600220-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	10/6/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
Minnesota Department of Health	840911	12/31/2016
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Tennessee Department of Environment and Concervation	04016	6/30/2017
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2016
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	8/31/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1600326 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/01/16	JC	001-007

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/05/16	LKL	001-007

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1600326 — DB-5MSUI (circled) — SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/07/16	Jc	008, 009

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/07/16	LKC	008, 009

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number:

Date: 4/7/2016
Project Name: San Jacinto
Project Number: 150557-01.01
Project Manager: David Keith
Phone Number: 503-972-5001 (Masa Kanematsu
Shipment Method: Anchor QEA)

ANCHOR QEA

2/2

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	2378 TCDD	2378 TCDF	23478 PeCDF		37Cl - 2378TCDD	13C - 1234TCDF	13C - 23478 PeCDF	Comments/Preservation
1	03162016 SJGW 1	03/16/2016 9:00	Hexane	1								40mL Hexane rinsate of PDMS fibers
2	04072016 SJGW 1	04/07/2016 9:00	Hexane	1								40mL Hexane rinsate of Sampler assembly
3	04072016 SJGW 2	04/07/2016 9:00	Hexane	1								40mL Hexane rinsate of GW Sampler assembly
4												
5	04072016 SJGW 10	04/07/2016 9:30	SPME	1								PDMS fiber for SPME blank
6	04072016 SJGW 11	04/07/2016 9:30		1								PDMS fiber to determine Co of PRCs
7	04072016 SJGW 12	04/07/2016 9:30		1								PDMS fiber to determine Co of PRCs
8	04072016 SJGW 13	04/07/2016 9:30		1								PDMS fiber to determine Co of PRCs
9	04072016 SJGW 14	04/07/2016 9:30		1								PDMS fiber to determine Co of PRCs
10	04072016 SJGW 15	04/07/2016 9:30		1								PDMS fiber to determine Co of PRCs
11	04072016 SJGW 16	04/07/2016 10:00		1								PDMS fiber for Lab QC (150.0cm)
12	04072016 SJGW 17	04/07/2016 10:00		1								PDMS fiber for Lab QC (150.0cm)
13	04072016 SJGW 18	04/07/2016 10:00		1								PDMS fiber for Lab QC (150.0cm)
14												
15												

Notes: 04072016 SJGW 10 : SPME blank (76.3 + 75.4 cm), 04072016 SJGW 11 ~ 15 : PDMS fibers to determine initial PRCs concentrations (11: 76.0 + 75.2 cm, 12: 75.1 + 74.9 cm, 13: 75.0 + 75.0 cm, 14: 75.8 + 75.0 cm, 15: 75.0 + 75.1 cm), 04072016 SJGW 16 ~ 18 : PDMS fibers for lab QC (16: 75.0 + 75.0 cm, 17: 75.0 + 75.0 cm, 18: 75.0 + 75.0 cm)

Relinquished By:	Company: Anchor QEA, LLC	Received By:	Company:
Signature/Printed Name: Masa Kanematsu	Date/Time: 4/7/2016	Signature/Printed Name:	Date/Time:

Relinquished By:	Company:	Received By:	Company: ALS HRMS
Signature/Printed Name:	Date/Time:	Signature/Printed Name:	Date/Time: 4/8/16 9:00

E1600326 5
Integral Consulting, Inc.
San Jacinto

15 of 326

E1600326

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Page 2 of 2

ALS Environmental

Cooler Receipt Form

Project Chemist AK

Client/Project Anchor QEA

Thermometer ID SM04

Date/Time Received: 4/8/16 9:00 Initials: AL Date/Time Logged in: 4/8/16 Initials AL

1. Method of delivery: ○ US Mail ☑ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ☑ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ☑ No
   Were they intact? ○ Yes ○ No ☑ N/A
   Were they signed and dated? ○ Yes ○ No ☑ N/A

   If yes, how many and where? No Seals
4. Packing Material: ○ Inserts ☑ Baggies ☑ Bubble Wrap ☑ Gel Packs ○ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ☑ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7760 6344 3470		4/8/16	9:15	AL	15.6/17.6	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☑ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☑ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☑ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ☑ Yes ○ No
10. Did sample labels and tags agree with custody documents? ☑ Yes ○ No

Notes, Discrepancies, & Resolutions:

Samples received out of temp AL 4/8/16

Service request Label: E1600326 5
Integral Consulting, Inc.
San Jacinto

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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 262304 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/26/16 12:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600282-006	04052016SJPW10	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
2	E1600326-001	03162016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
3	E1600326-002	04072016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
4	E1600326-003	04072016SJGW2	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
5	EQ1600219-01	MB		1613B/Dioxins Furans			NonAq Liquid	2.210g	
6	EQ1600219-02	LCS		1613B/Dioxins Furans			NonAq Liquid	2.086g	
7	EQ1600219-03	DLCS		1613B/Dioxins Furans			NonAq Liquid	2.032g	

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution Inventory ID 86467 Logbook Ref: 86467 12/8/2015 CID 100ng/ml Expires On: 06/05/2016

E1600282-006 20.00µL E1600326-001 20.00µL E1600326-002 20.00µL E1600326-003 20.00µL EQ1600219-01 20.00µL EQ1600219-02 20.00µL
EQ1600219-03 20.00µL

Name: 1613B Matrix Working Standard Inventory ID 172305 Logbook Ref: JP 172305 5/10/16 2-20 ng/mL Expires On: 11/06/2016

E1600282-006 100.00µL E1600326-001 100.00µL E1600326-002 100.00µL E1600326-003 100.00µL EQ1600219-01 100.00µL EQ1600219-02 100.00µL
EQ1600219-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 172717 Logbook Ref: 172717 AL 05/25/16 2-4ng/mL Expires On: 11/16/2016

E1600282-006 1,000.00µL E1600326-001 1,000.00µL E1600326-002 1,000.00µL E1600326-003 1,000.00µL EQ1600219-01 1,000.00µL EQ1600219-02 1,000.00µL
EQ1600219-03 1,000.00µL

Preparation Materials

Carbon, High Purity	CID 05/23/2016 (172622)	Ethyl Acetate 99.9% Minimum EtOAc	CID 02/25/2016 (88324)	Glass Wool	CID 04/01/201 (171329)
Hexanes 95%	CID 05/16/2016 (172432)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)	Sodium Hydroxide Reagent Grade NaOH	05/12/2016 CID (172369)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 04/25/16 (171913)	Asian Taste Pure Canola Oil	TW 04/29/16 (172043)	Silica Gel	CID 05/13/2016 (172433)
sulfuric acid	AL 03/25/16 (89012)				

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/26/16 12:00	Started:	6/1/16 14:00	Started:	6/3/16 08:00	Started:	6/3/16 12:00
Finished:	5/26/16 14:00	Finished:	6/1/16 15:00	Finished:	6/3/16 09:30	Finished:	6/3/16 12:30
By:	ALOPEZ	By:	ALOPEZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 262304 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/26/16 12:00 PM

Comments: ______________________________

Reviewed By: ______________________ Date: ______________

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Preparation Information Benchsheet

Prep Run#: 262305 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/25/16 02:30 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600326-004	04072016SJGW10	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
2	E1600326-005	04072016SJGW11	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
3	E1600326-006	04072016SJGW12	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
4	E1600326-007	04072016SJGW13	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
5	E1600326-008	04072016SJGW14	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
6	E1600326-009	04072016SJGW15	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
7	EQ1600220-01	MB		1613B/Dioxins Furans			NonAq Liquid	2.201g	
8	EQ1600220-02	LCS		1613B/Dioxins Furans			NonAq Liquid	2.007g	
9	EQ1600220-03	DLCS		1613B/Dioxins Furans			NonAq Liquid	2.089g	

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution Inventory ID 86467 Logbook Ref: 86467 12/8/2015 CID 100ng/ml Expires On: 06/05/2016

E1600326-004 20.00µL E1600326-005 20.00µL E1600326-006 20.00µL E1600326-007 20.00µL E1600326-008 20.00µL E1600326-009 20.00µL
EQ1600220-01 20.00µL EQ1600220-02 20.00µL EQ1600220-03 20.00µL

Name: 1613B Matrix Working Standard Inventory ID 172305 Logbook Ref: JP 172305 5/10/16 2-20 ng/mL Expires On: 11/06/2016

EQ1600220-02 100.00µL EQ1600220-03 100.00µL

Name: 8290 Internal Working Standard Inventory ID 172703 Logbook Ref: 172703 AL 05/24/16 10-50 ng/mL Expires On: 11/20/2016

E1600326-004 100.00µL E1600326-005 100.00µL E1600326-006 100.00µL E1600326-007 100.00µL E1600326-008 100.00µL E1600326-009 100.00µL
EQ1600220-01 100.00µL EQ1600220-02 100.00µL EQ1600220-03 100.00µL

Preparation Materials

Carbon, High Purity	CID 05/23/2016 (172622)	Ethyl Acetate 99.9% Minimum EtOAc	CID 02/25/2016 (88324)	Glass Wool	CID 04/01/201 (171329)
Hexanes 95%	CID 05/16/2016 (172432)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)	Sodium Hydroxide Reagent Grade NaOH	CID 5/23/2016 (172624)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 04/25/16 (171913)	Asian Taste Pure Canola Oil	TW 04/29/16 (172043)	Silica Gel	CID 05/13/2016 (172433)
sulfuric acid	AL 03/25/16 (89012)	Toluene 99.9% Minimum	AL 05/23/16 (172678)		

Preparation Information Benchsheet

Prep Run#:	262305	**Prep WorkFlow:**	OrgExtDiox(365)	**Status:**	Prepped
Team:	Semivoa GCMS/ALOPEZ	**Prep Method:**	Method	**Prep Date/Time:**	5/25/16 02:30 PM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/25/16 14:30	Started:	5/25/16 16:30	Started:	5/26/16 06:00	Started:	5/26/16 11:00
Finished:	5/26/16 14:52	Finished:	5/25/16 17:00	Finished:	5/26/16 10:30	Finished:	5/26/16 14:50
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: ______________________________

Reviewed By: ____________________ Date: ____________

Chain of Custody

Relinquished By: ____________________ Date: ____________

Received By: ____________________ Date: ____________

Extracts Examined

Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	924.038	46		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	876.710	44		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	867.417	43		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	825.204	41		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1592.206	40		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.784			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	876.748	44		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	842.951	42		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	884.009	44		24-185	1.58	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	847.501	42		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1799.486	45		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.780			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	ng/Kg
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	ng/Kg
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

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Superset Reference:16-0000383419 rev 00

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	858.906	43		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	821.549	41		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	850.108	43		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	824.903	41		21-178	1.60	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1730.421	43		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.484			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	ng/Kg
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	ng/Kg
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	104.060				0.77	0.951
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	346.348	35		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	362.174	36		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	430.225	43		24-185	1.61	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	77.253	19	**Y**	21-178	1.57	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	923.092	46		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	45.447			35-197	NA	1.022

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	ng/Kg
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	ng/Kg
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	89.905				0.79	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	298.741	30		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	305.926	31		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	366.627	37		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	67.032	17	**Y**	21-178	1.62	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	866.877	43		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	39.581			35-197	NA	1.022

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	ng/Kg
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	ng/Kg
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	107.635				0.80	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	355.081	36		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	380.932	38		24-169	0.79	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	412.800	41		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	72.901			21-178	1.56	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	844.654	42		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	44.712			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	ng/Kg
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	21.4	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	23.7	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	ng/Kg
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	21.4	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	23.7	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	99.386				0.73	0.951
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	255.982	26		25-164	0.77	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	284.227	28		24-169	0.82	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	380.088	38		24-185	1.55	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	65.915			21-178	1.45	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	722.817	36		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	36.092			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	ng/Kg
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	11.3	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	12.6	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	ng/Kg
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	11.3	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	12.6	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	104.469				0.72	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	307.804	31		25-164	0.74	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	317.820	32		24-169	0.76	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	397.717	40		24-185	1.58	1.140
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	73.359			21-178	1.65	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	748.931	37		29-147	0.49	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	40.364			35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	ng/Kg
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	ng/Kg
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	91.065				0.79	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	318.300	32		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	314.287	31		24-169	0.79	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	365.475	37		24-185	1.58	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	63.191			21-178	1.62	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	831.108	42		29-147	0.50	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	40.286			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	2.26	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	2.26	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	11.3	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	2.26	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	2.26	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	11.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	880.428	44		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	825.710	41		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	826.023	41		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	787.091	39		21-178	1.59	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1489.602	37		29-147	0.51	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.000			35-197	NA	1.022

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	2.27	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	2.27	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	11.4	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	2.27	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	2.27	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	11.4	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	274.895	27		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	259.869	26		24-169	0.77	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	264.348	26		24-185	1.59	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	600.493	30		29-147	0.51	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.705			35-197	NA	1.022

Accuracy & Precision

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Analyzed:**	06/26/16
Sample Matrix:	NonAq Liquid	**Date Extracted:**	05/26/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	504016

	Lab Control Sample EQ1600219-02			Duplicate Lab Control Sample EQ1600219-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484	479	101	478	492	97	68-160	1	50
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1	95.9	90	94.1	98.4	96	75-158	9	50
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2	95.9	86	83.1	98.4	84	67-158	1	50

Client: Integral Consulting, Incorporated
Project: San Jacinto/150557-01.01
Sample Matrix: NonAq Liquid

Service Request: E1600326
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600219-02

Units: ng/Kg
Basis: As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method
Sample Amount: 2.086g

Date Analyzed: 06/26/16 03:09
Date Extracted: 5/26/16
Instrument Name: E-HRMS-08
GC Column: DB-5MSUI

Data File Name: P604002
ICAL Date: 06/25/16

Blank File Name: P603993
Cal Ver. File Name: P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2		2.40	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1		2.40	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484		12.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	82.2		2.40	1
Tetrachlorodibenzofurans (TCDF), Total	86.1		2.40	1
Pentachlorodibenzofurans (PeCDF), Total	931		12.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	939.378	47		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	896.386	45		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	905.972	45		24-185	1.60	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	856.361	43		21-178	1.57	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1759.063	44		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.286			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	83.1		6.46	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	94.1		6.40	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	478		12.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	83.1		6.46	1
Tetrachlorodibenzofurans (TCDF), Total	94.1		6.40	1
Pentachlorodibenzofurans (PeCDF), Total	919		12.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	761.306	38		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	729.732	36		24-169	0.83	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	847.157	42		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	815.813	41		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1517.396	38		29-147	0.51	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0			35-197	NA	

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Analyzed:**	06/26/16
Sample Matrix:	NonAq Liquid	**Date Extracted:**	05/25/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	504351

	Lab Control Sample EQ1600220-02			Duplicate Lab Control Sample EQ1600220-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	500	498	100	482	479	101	68-160	4	50
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	97.3	99.7	98	98.4	95.7	103	75-158	1	50
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	101	99.7	101	95.1	95.7	99	67-158	6	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	101		2.49	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	97.3		2.49	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	500		12.5	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	101		2.49	1
Tetrachlorodibenzofurans (TCDF), Total	97.3		2.49	1
Pentachlorodibenzofurans (PeCDF), Total	982		12.5	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	307.817	31		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	296.673	30		24-169	0.78	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	335.135	34		24-185	1.57	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	772.331	39		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.618			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	95.1		4.52	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	98.4		6.79	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	482		12.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	95.1		4.52	1
Tetrachlorodibenzofurans (TCDF), Total	98.4		6.79	1
Pentachlorodibenzofurans (PeCDF), Total	937		12.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	323.556	32		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	303.363	30		24-169	0.76	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	368.296	37		24-185	1.55	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	742.863	37		29-147	0.50	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.975			35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
03162016SJGW1

Run #10 Filename P603995 Samp: 1 Inj: 1 Acquired: 25-JUN-16 21:26:14
Processed: 1-JUL-16 12:44:37 Sample ID: E1600326-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.572e+04	4.459e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	5.256e+04	3.295e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.946e+04	3.134e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.342e+04	6.370e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.700e+04	3.426e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.167e+04	3.973e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.827e+04	3.144e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	5.286e+01				no	0.945

EDL

TCDD = (1.49e+03 + 1.21e+03) x 2000 pg 1 x 2.5 / [(~~2.700e+04~~ + ~~3.426e+04~~) x 1.0 g x 100/ x 1.048] = 1.11 ng/kg

(5.16e+06 + 6.44e+06)

LW 07/05/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
03162016SJGW1

Run #10 Filename P603995 Samp: 1 Inj: 1 Acquired: 25-JUN-16 21:26:14
Processed: 1-JUL-16 12:44:37 LAB. ID: E1600326-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.03e+03	*	*	3.17e+03	*
3	2,3,4,7,8-PeCDF	*	4.68e+02	*	*	1.59e+03	*
11	2,3,7,8-TCDD	*	1.49e+03	*	*	1.21e+03	*
18	13C-2,3,7,8-TCDF	6.34e+06	5.38e+03	1.2e+03	7.87e+06	3.56e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	9.81e+06	7.67e+03	1.3e+03	6.16e+06	5.92e+03	1.0e+03
20	13C-2,3,4,7,8-PeCDF	9.80e+06	7.67e+03	1.3e+03	6.18e+06	5.92e+03	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	6.64e+06	1.29e+03	5.1e+03	1.26e+07	1.56e+03	8.0e+03
26	13C-1,2,3,4-TCDF	*	5.38e+03	*	*	3.56e+03	*
27	13C-2,3,7,8-TCDD	5.16e+06	7.11e+03	7.3e+02	6.44e+06	3.90e+03	1.7e+03
33	13C-1,2,3,4-TCDD	5.89e+06	7.11e+03	8.3e+02	7.40e+06	3.90e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.72e+06	1.80e+03	4.3e+03	6.16e+06	1.46e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	1.21e+04	1.92e+03	6.3e+00			

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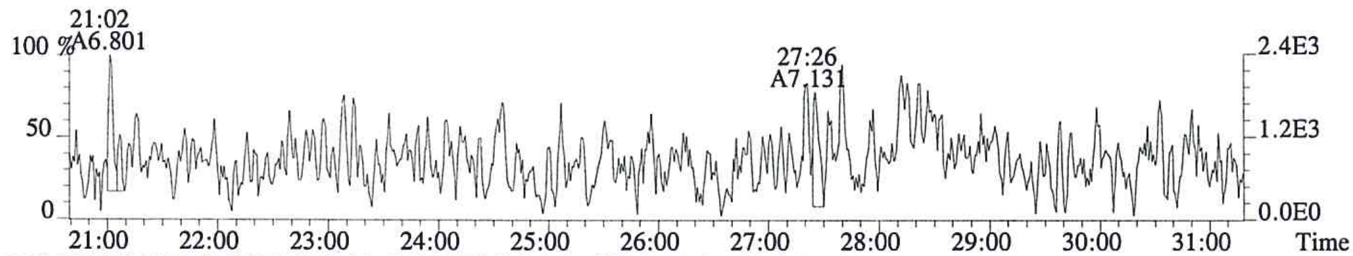
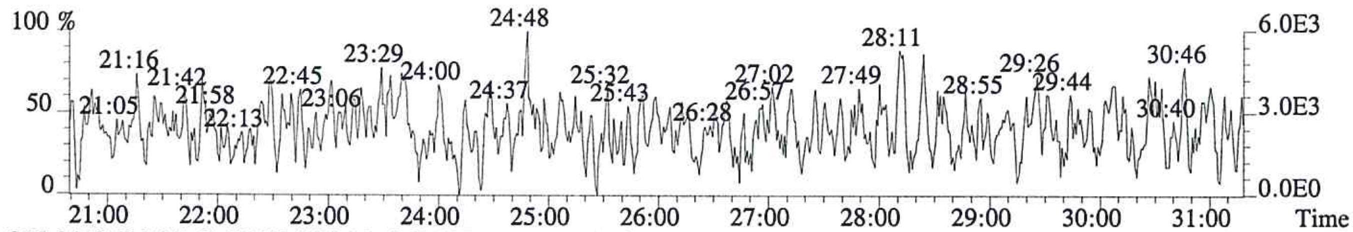
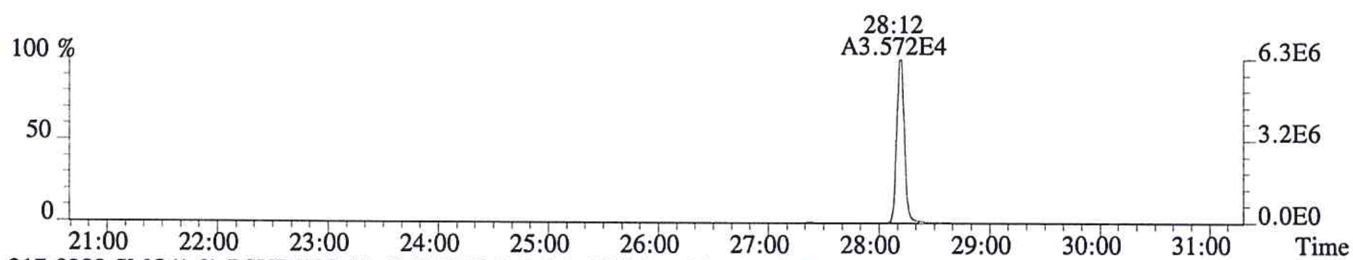
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



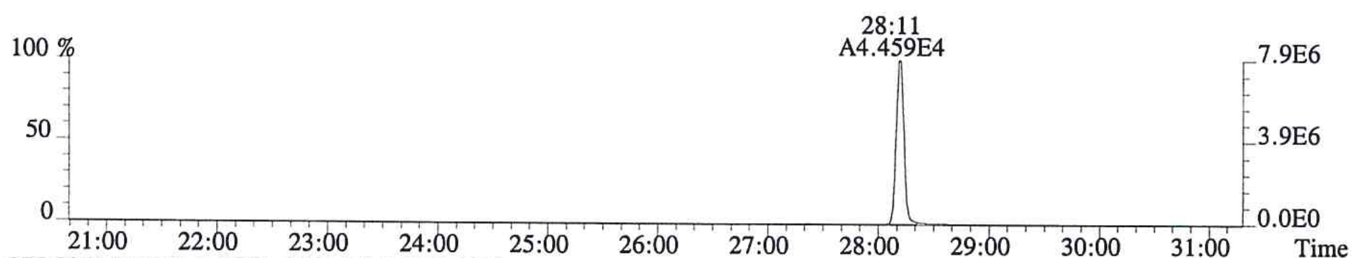
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



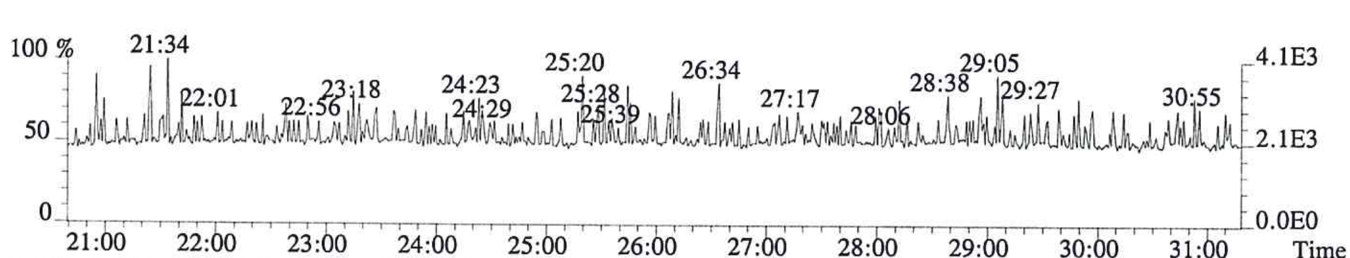
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5384.0,1.00%,F,T)



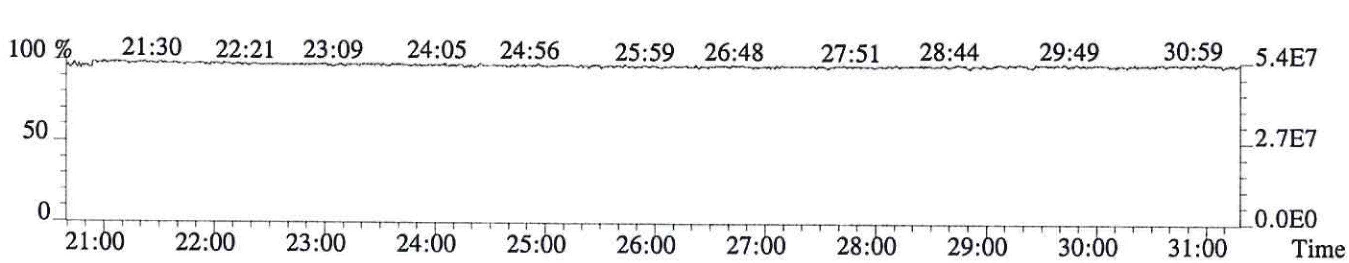
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



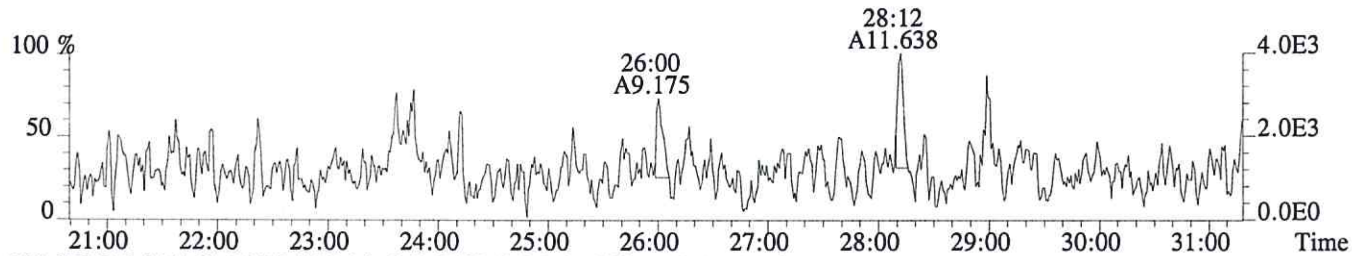
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



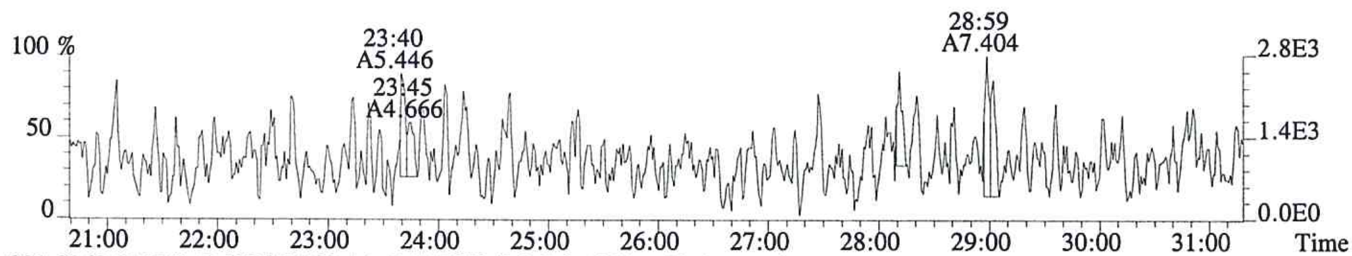
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



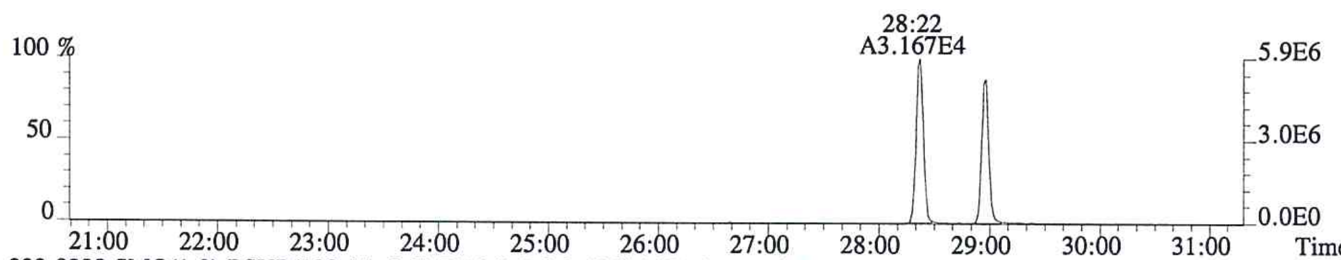
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



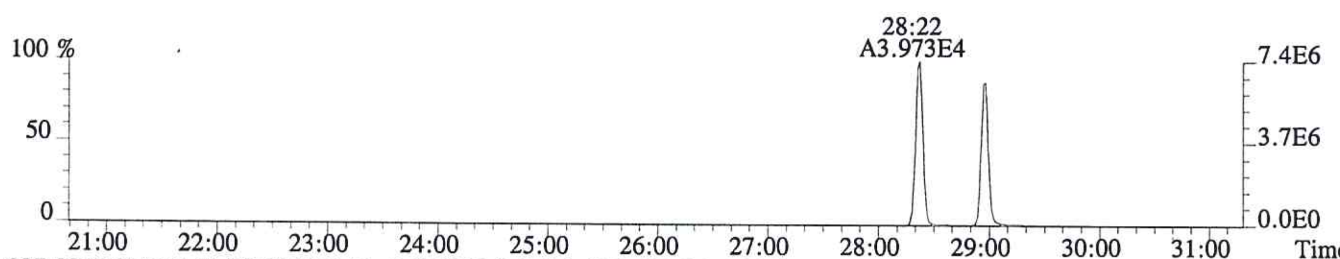
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



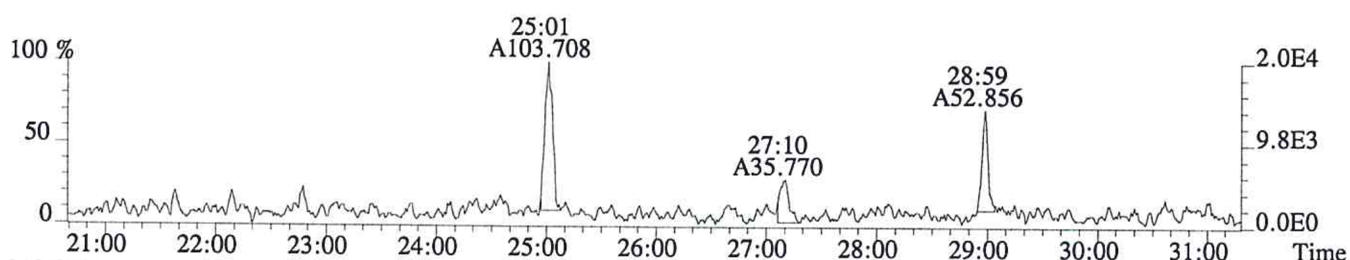
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7108.0,1.00%,F,T)



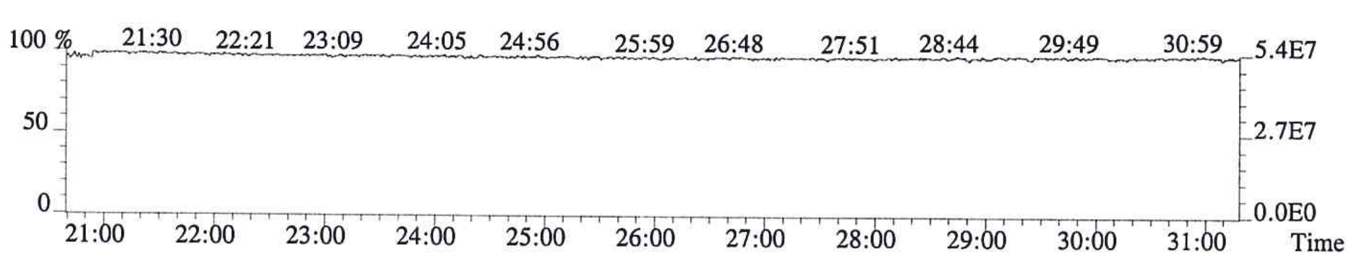
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3904.0,1.00%,F,T)



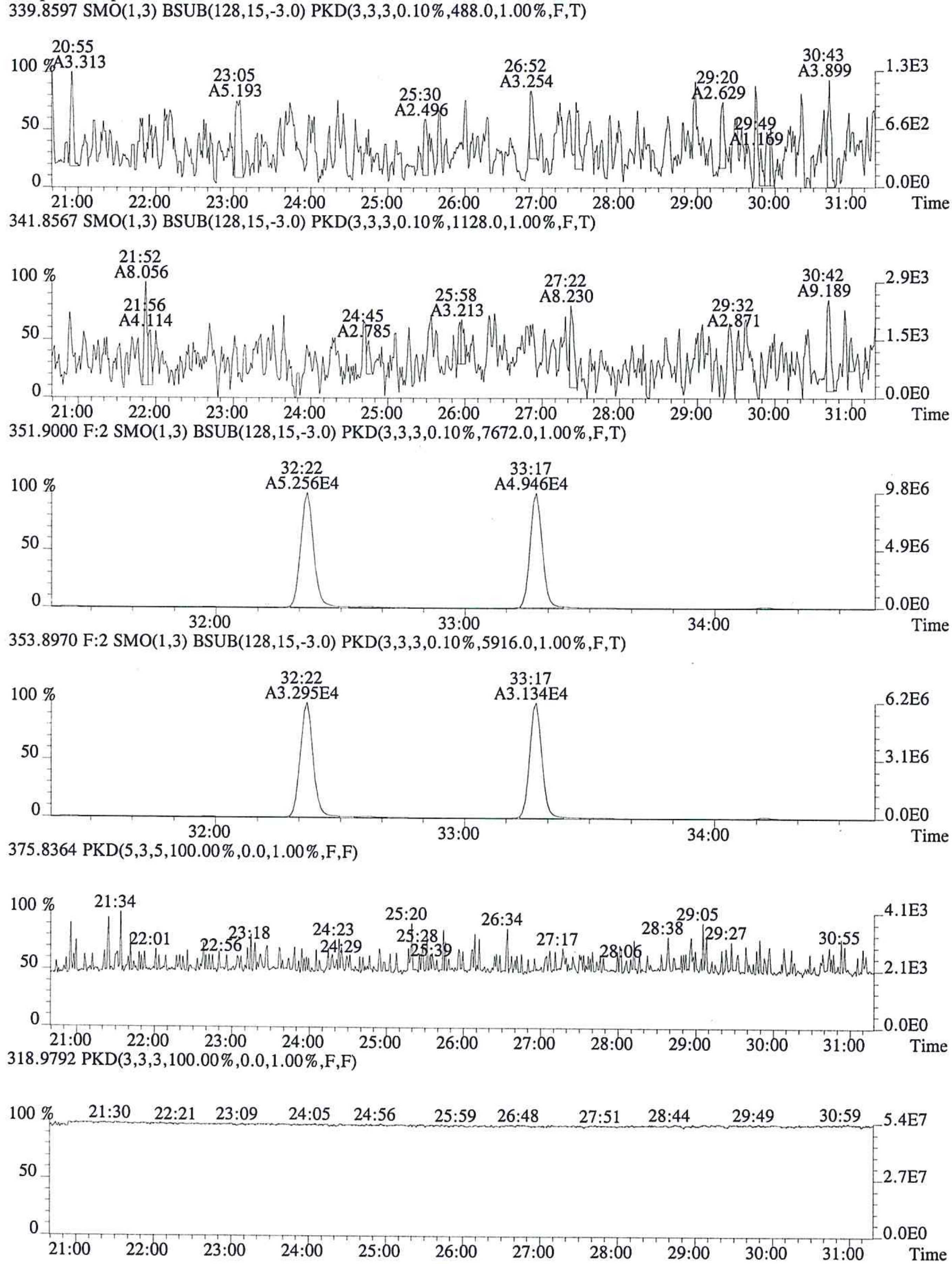
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



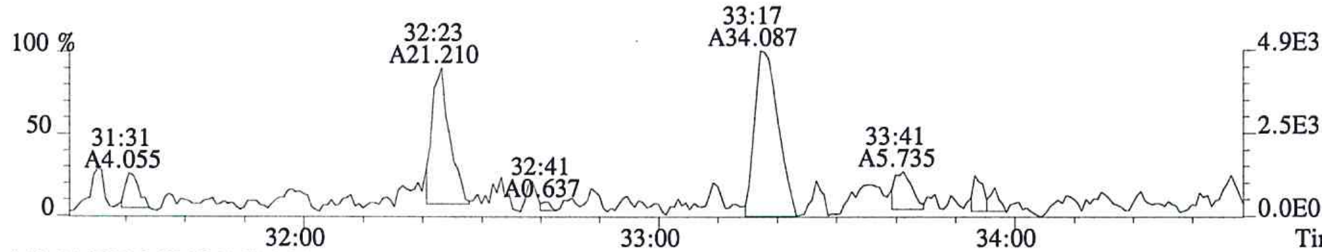
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



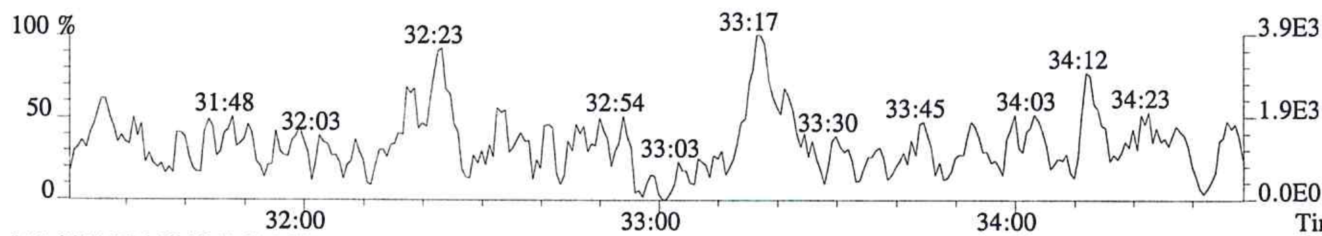
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001



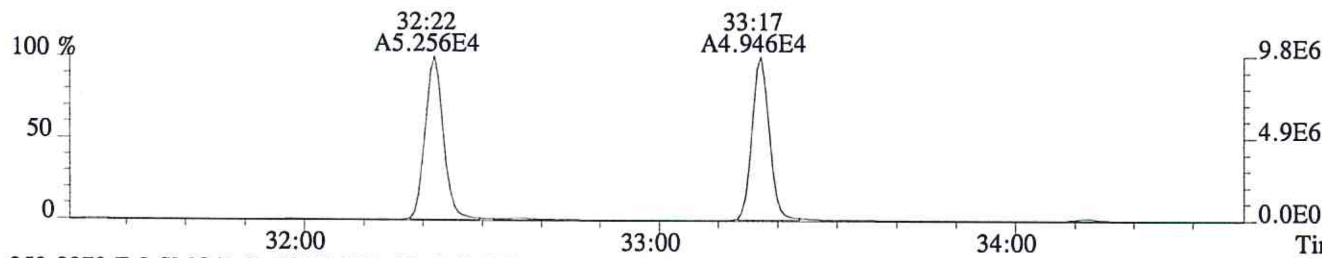
File:P603995 #1-298 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



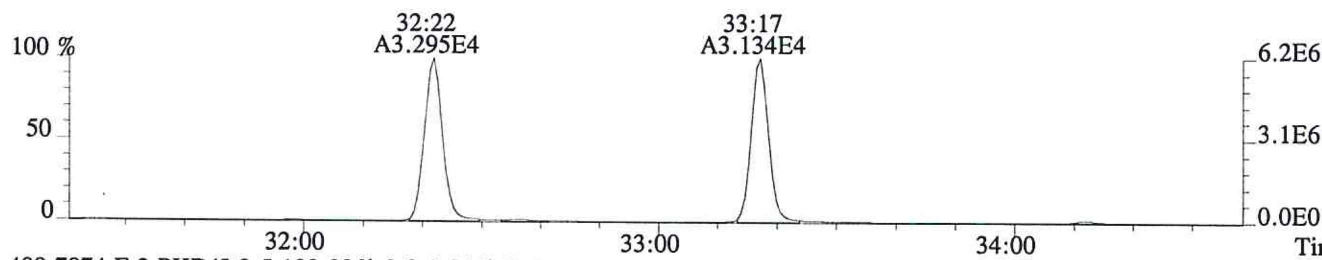
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



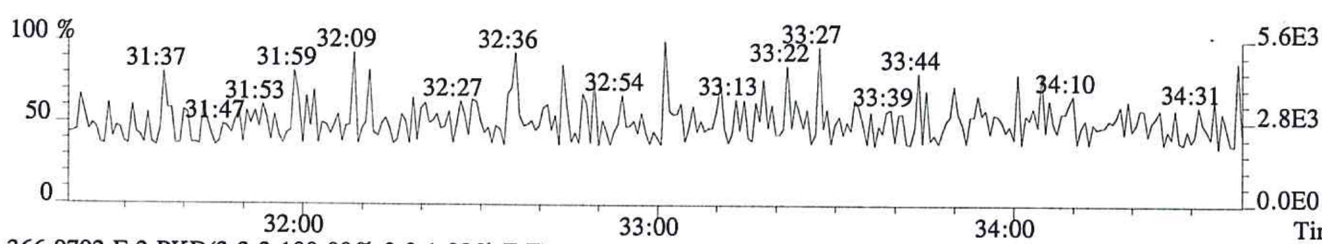
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7672.0,1.00%,F,T)



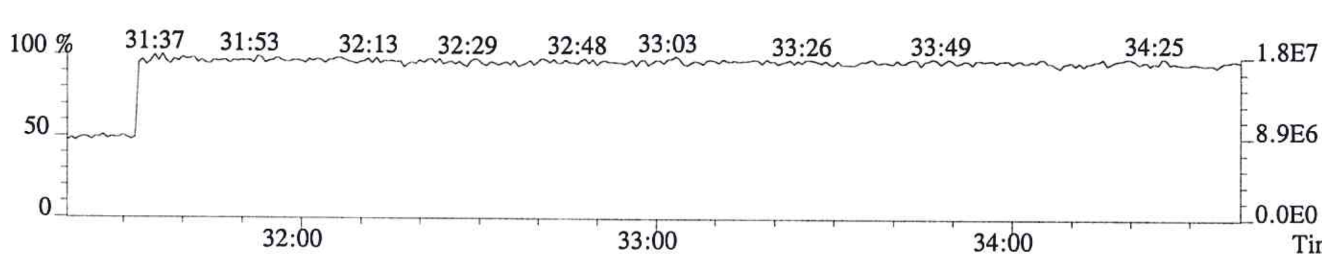
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



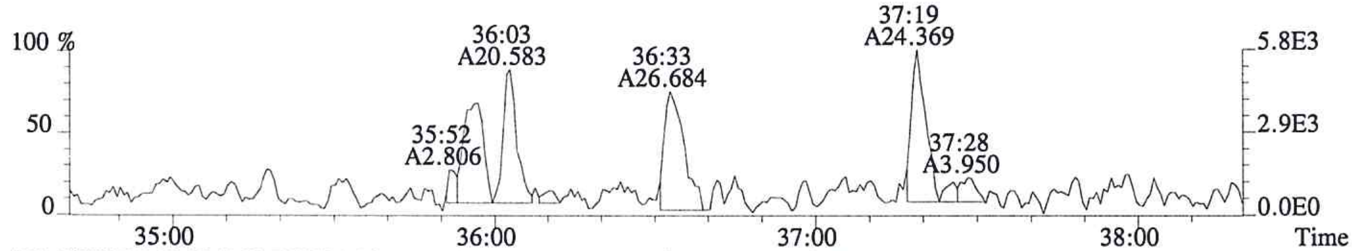
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



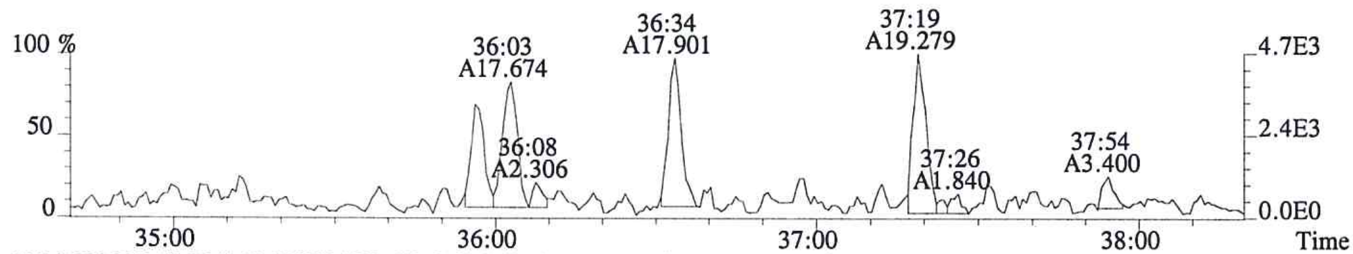
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



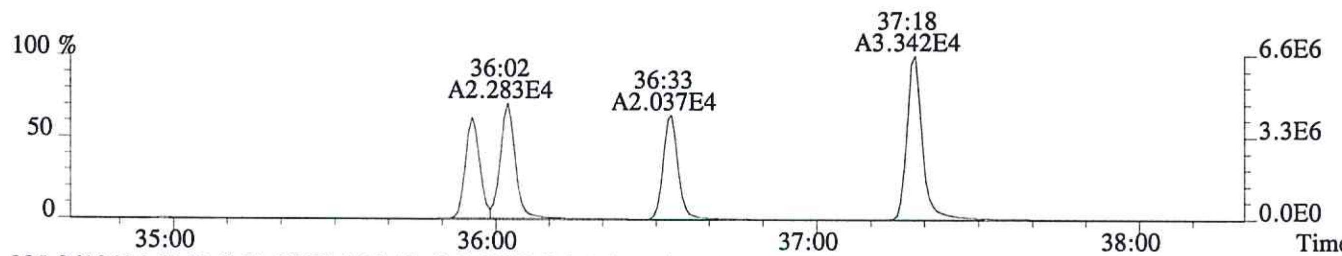
File:P603995 #1-329 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



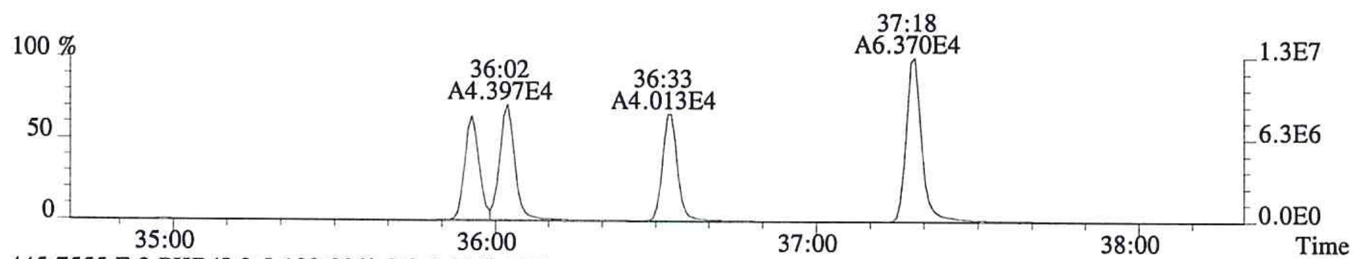
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



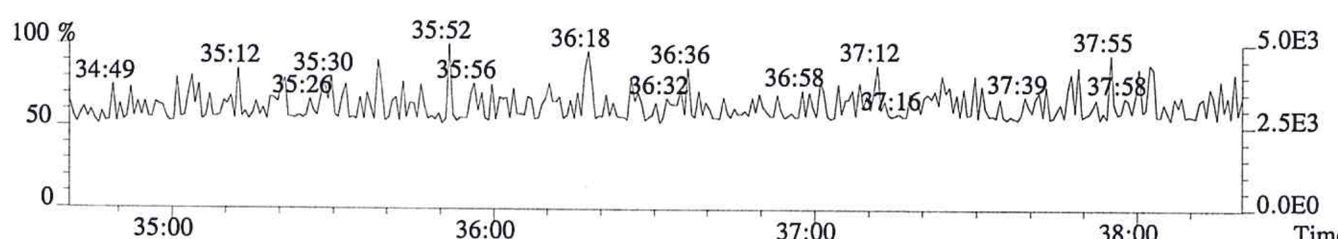
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



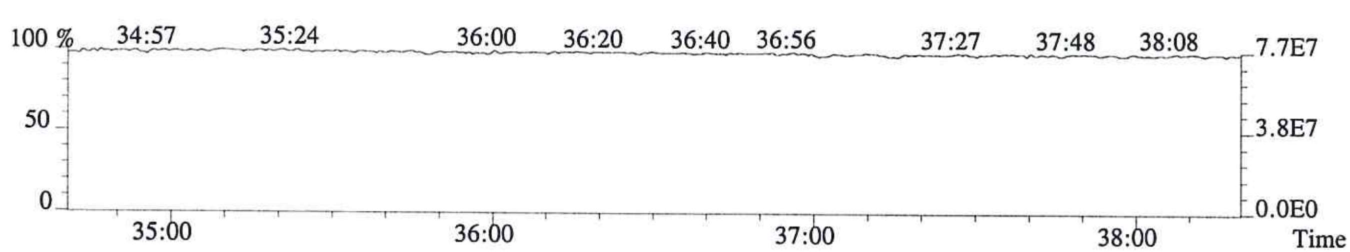
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

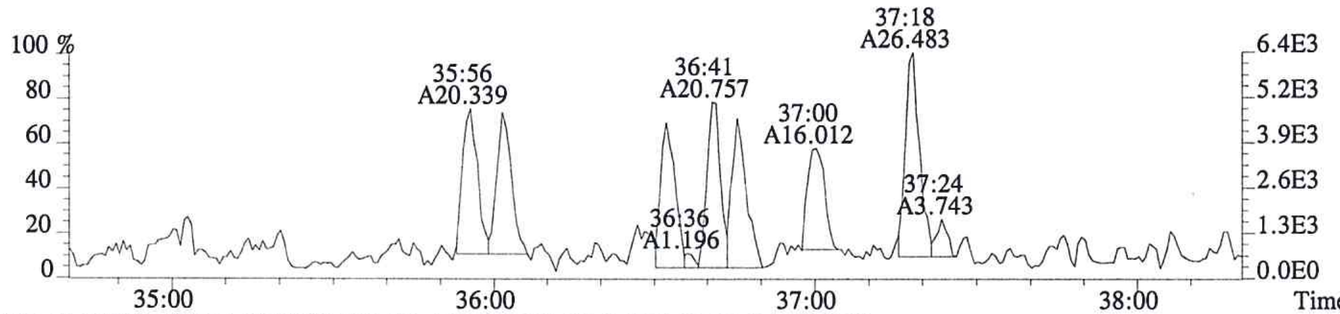


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

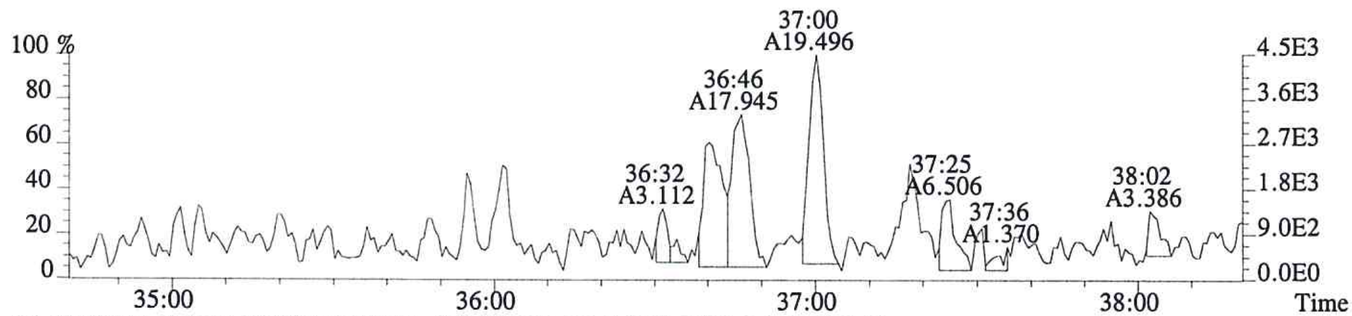


File:P603995 #1-329 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001

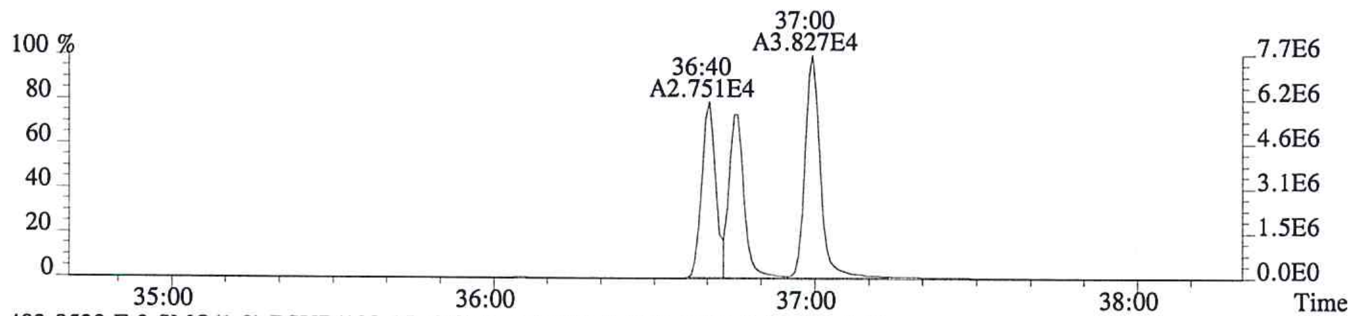
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



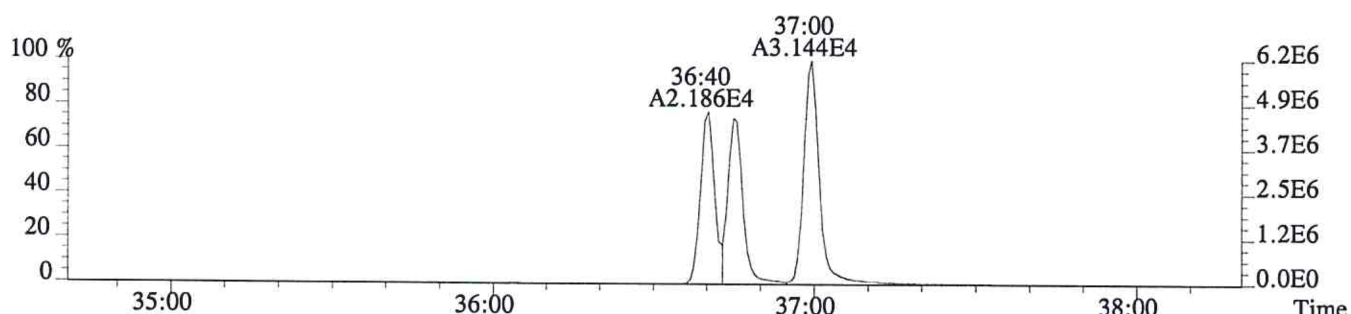
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



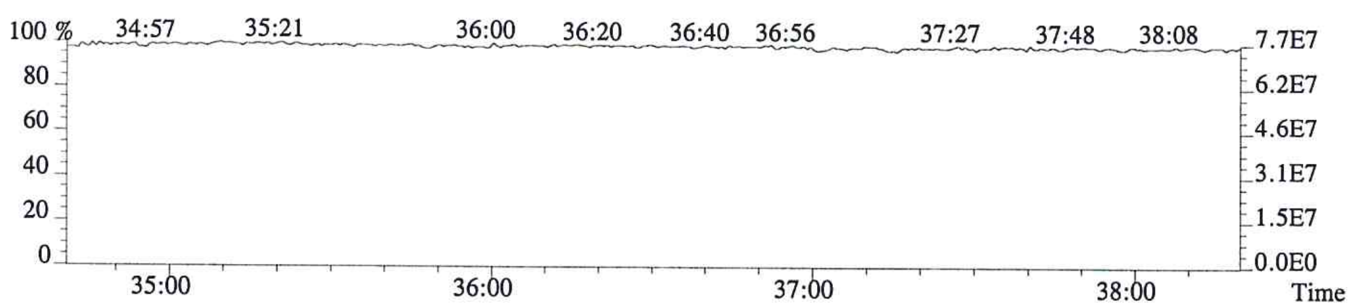
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW1

Run #11 Filename P603996 Samp: 1 Inj: 1 Acquired: 25-JUN-16 22:15:14
Processed: 1-JUL-16 12:44:38 Sample ID: E1600326-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.449e+04	4.335e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	5.378e+04	3.407e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	5.126e+04	3.240e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.763e+04	7.189e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.579e+04	3.280e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.190e+04	4.008e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.861e+04	3.095e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	5.302e+01				no	0.945

EDL (7.06e+03 + 7.05e+03) x 2000 pg 1 x 2.5
TCDD = -- = 0.881 ng/kg
(~~2.579e+04~~ + ~~3.280e+04~~) x 1.0 g x 100/ x 1.048 um 07/05/16
(5.04e+06 + 6.38e+06)

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW1

Run #11 Filename P603996 Samp: 1 Inj: 1 Acquired: 25-JUN-16 22:15:14
Processed: 1-JUL-16 12:44:38 LAB. ID: E1600326-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.24e+02	*	*	2.86e+03	*
3	2,3,4,7,8-PeCDF	*	5.48e+02	*	*	1.51e+03	*
11	2,3,7,8-TCDD	*	1.06e+03	*	*	1.05e+03	*
18	13C-2,3,7,8-TCDF	6.37e+06	4.86e+03	1.3e+03	7.93e+06	3.53e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+07	7.46e+03	1.3e+03	6.36e+06	5.76e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	7.46e+03	1.4e+03	6.40e+06	5.76e+03	1.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.57e+06	9.76e+02	7.8e+03	1.45e+07	1.98e+03	7.3e+03
26	13C-1,2,3,4-TCDF	*	4.86e+03	*	*	3.53e+03	*
27	13C-2,3,7,8-TCDD	5.04e+06	8.21e+03	6.1e+02	6.38e+06	3.72e+03	1.7e+03
33	13C-1,2,3,4-TCDD	6.10e+06	8.21e+03	7.4e+02	7.59e+06	3.72e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.81e+06	2.16e+03	3.6e+03	6.30e+06	1.68e+03	3.7e+03
35	37Cl-2,3,7,8-TCDD	1.23e+04	1.88e+03	6.5e+00			

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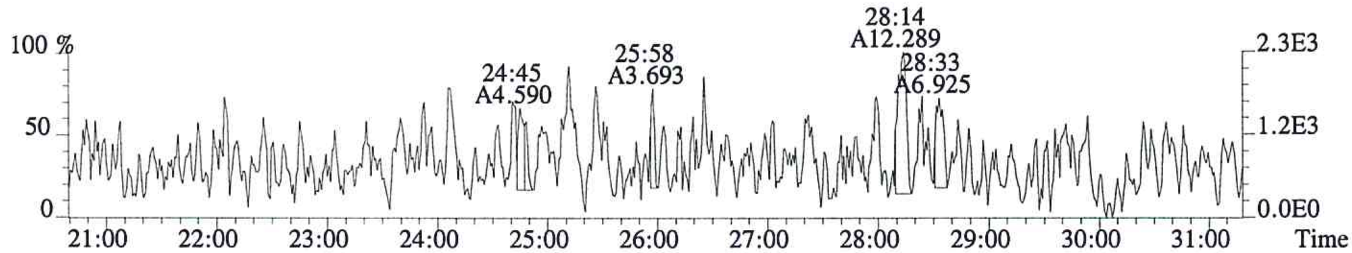
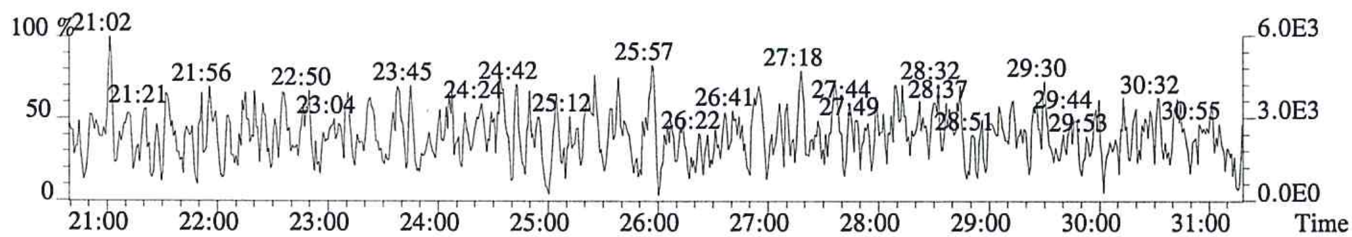
www.alsglobal.com

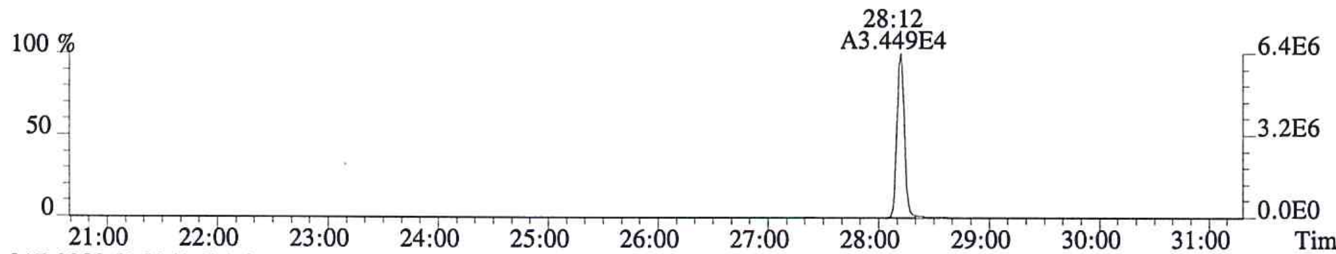
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



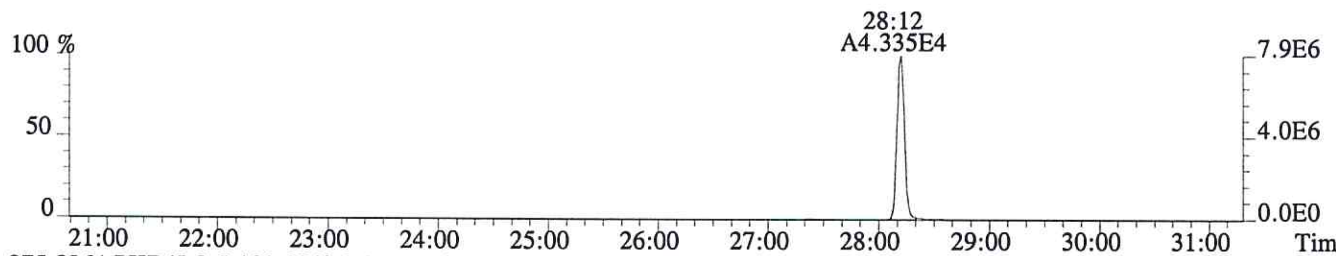
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



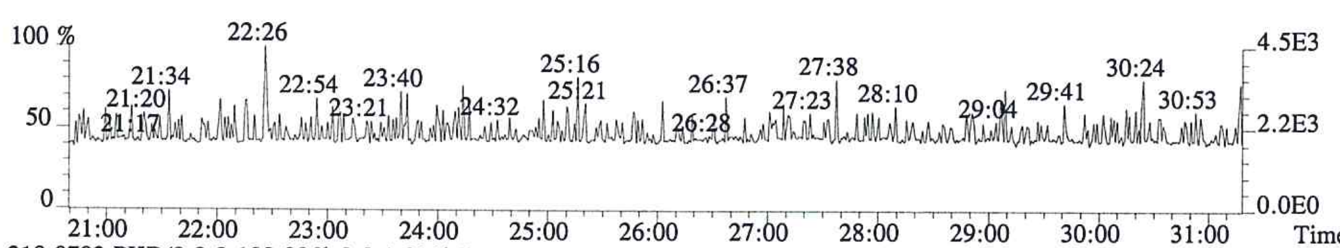
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4864.0,1.00%,F,T)



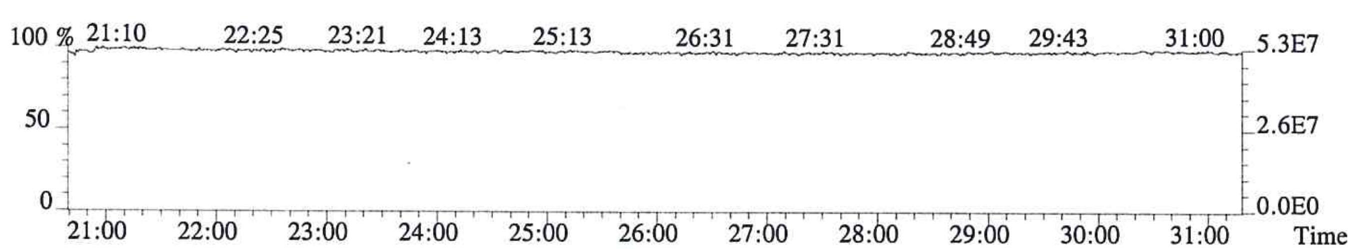
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3532.0,1.00%,F,T)



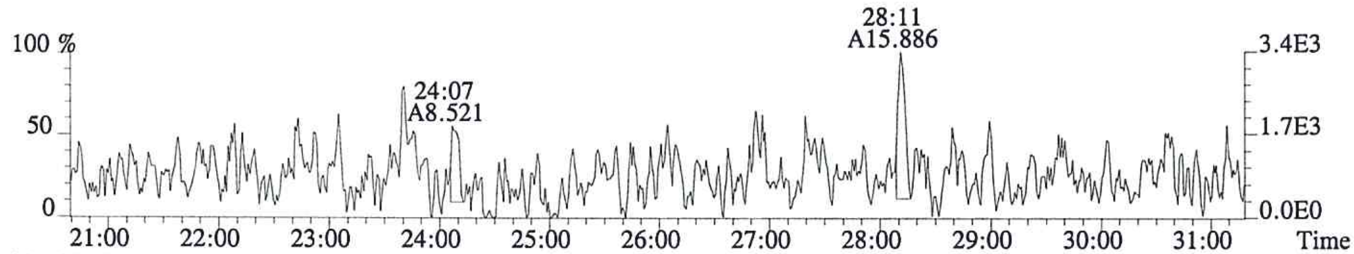
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



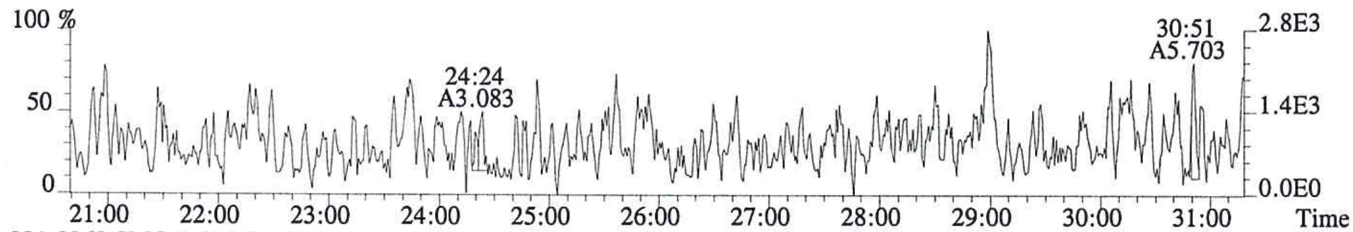
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



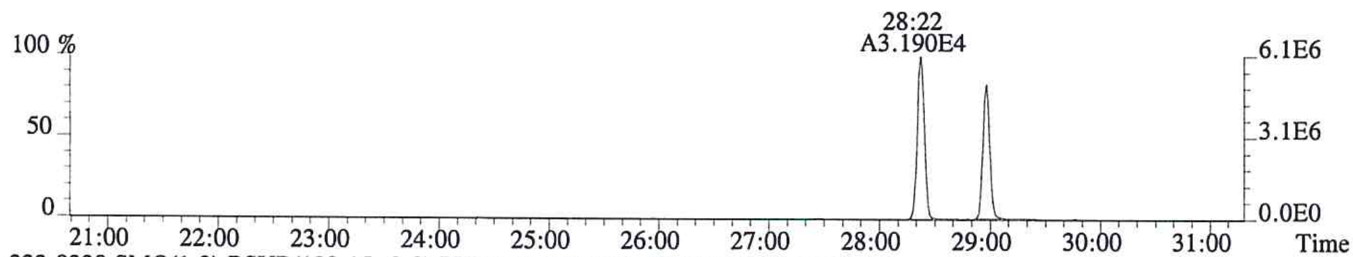
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



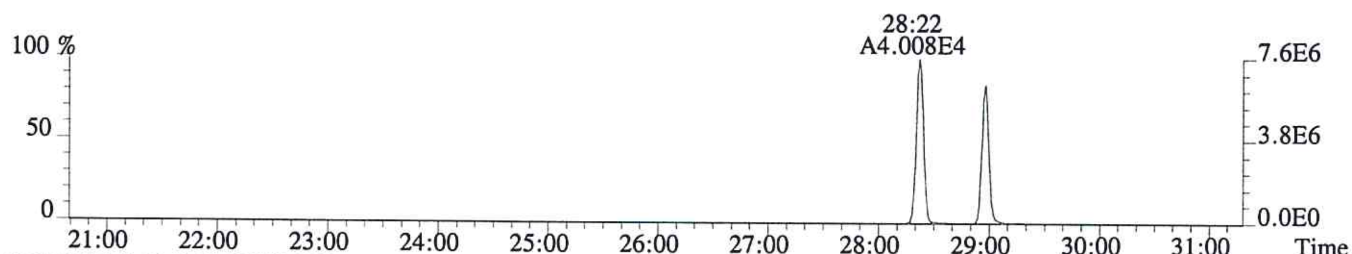
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



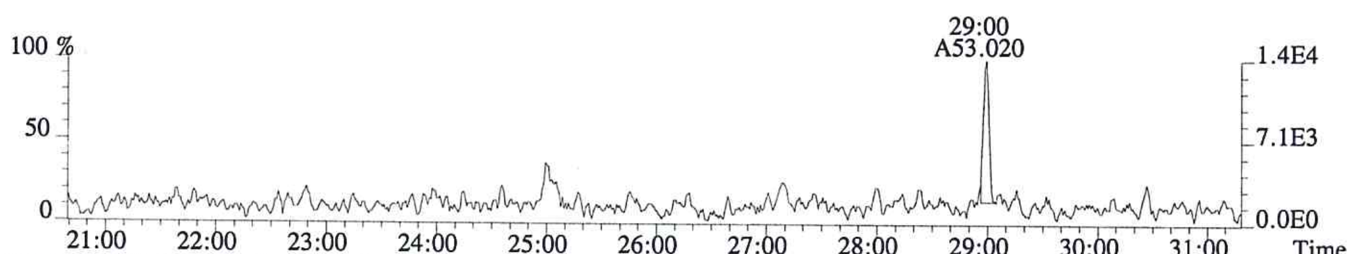
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8208.0,1.00%,F,T)



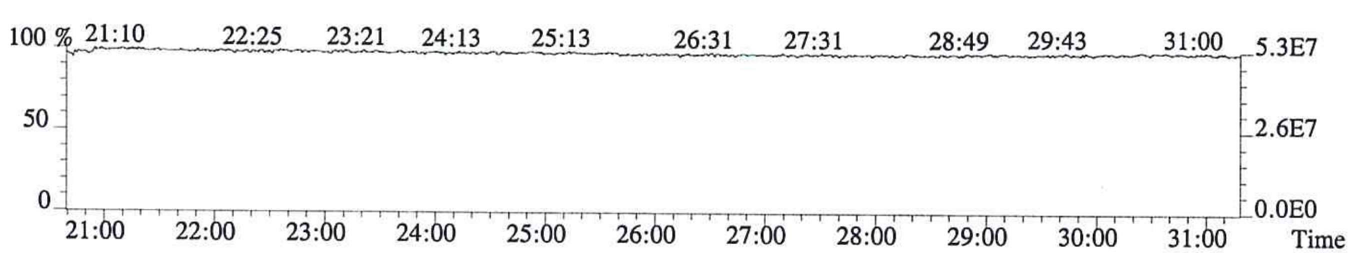
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



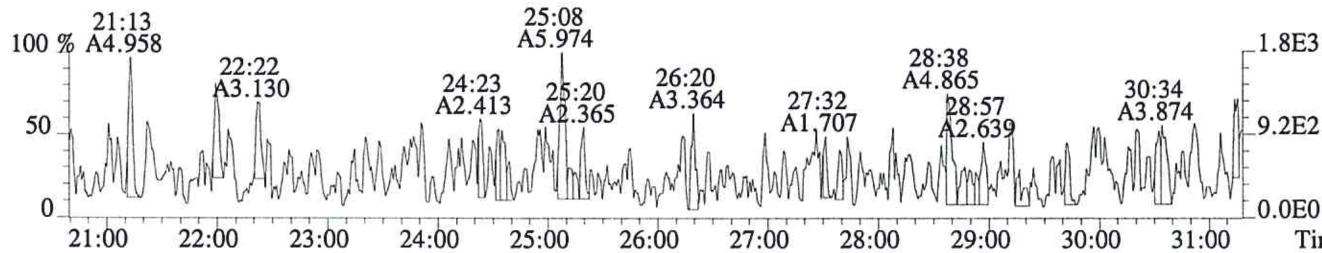
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



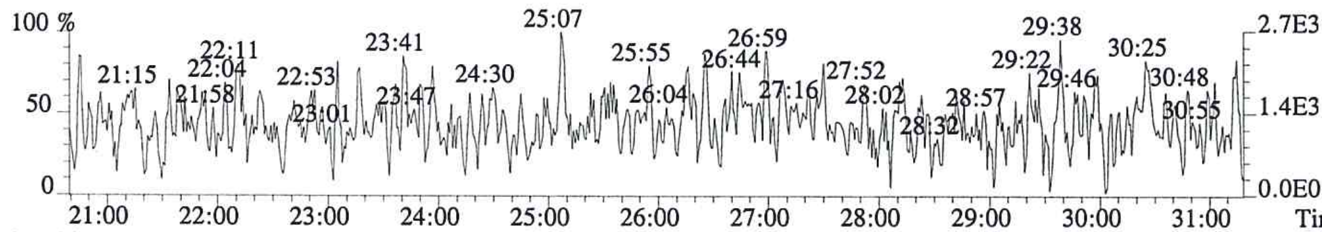
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



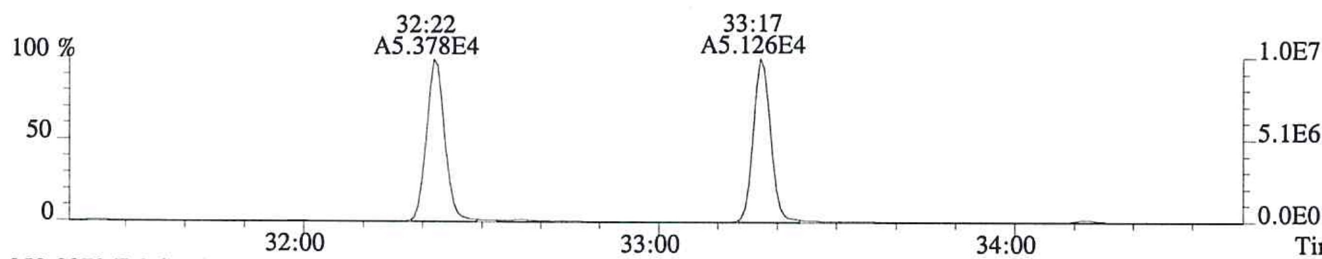
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



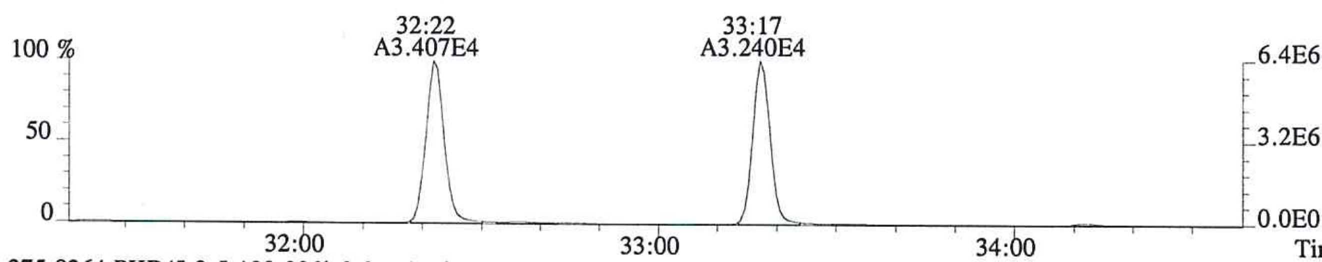
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



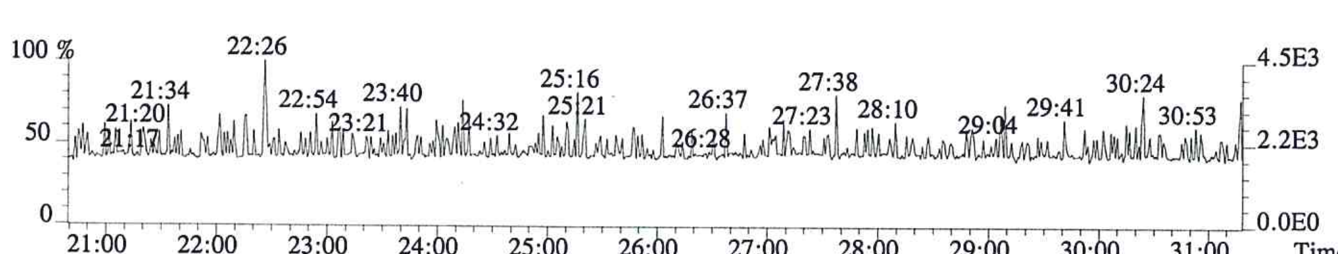
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7456.0,1.00%,F,T)



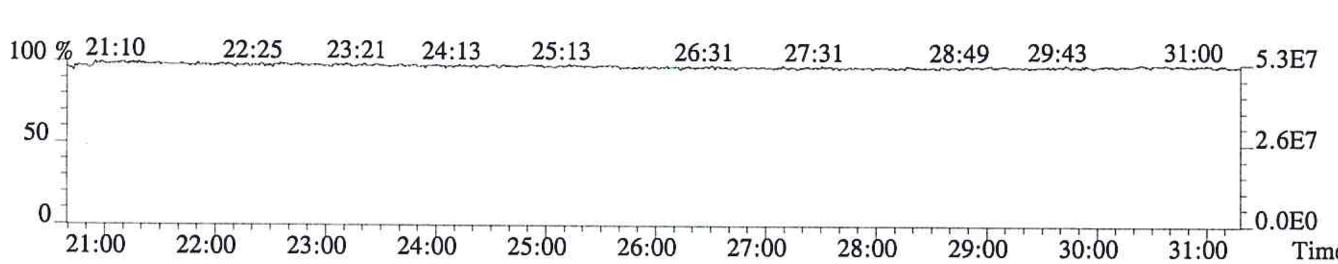
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5756.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

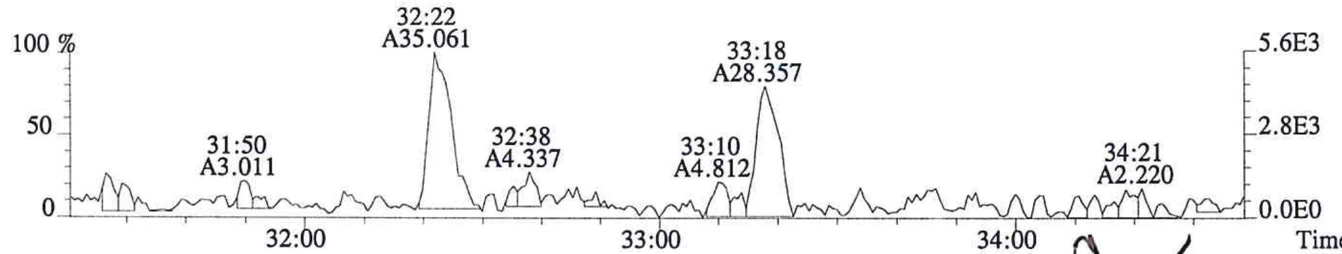


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

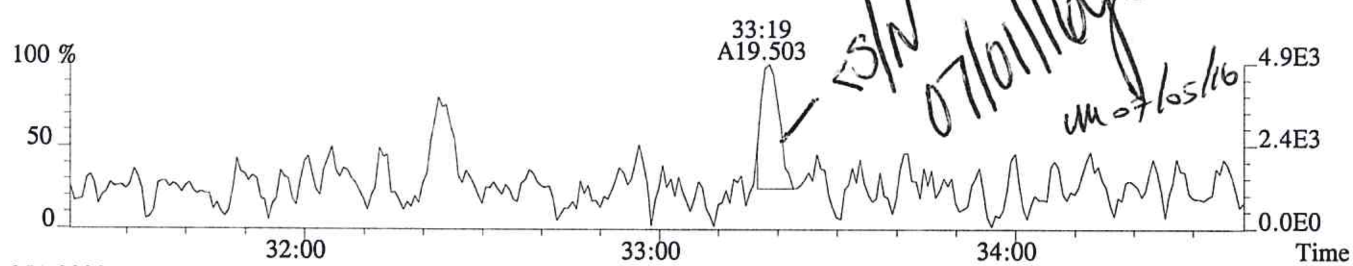


File:P603996 #1-298 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002

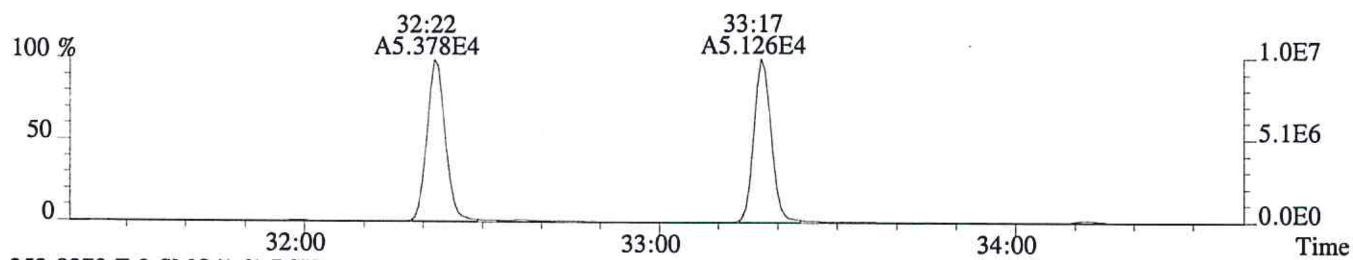
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



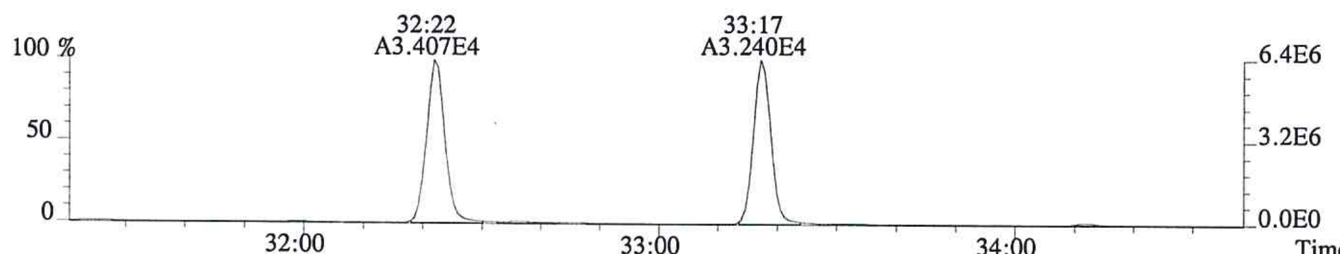
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



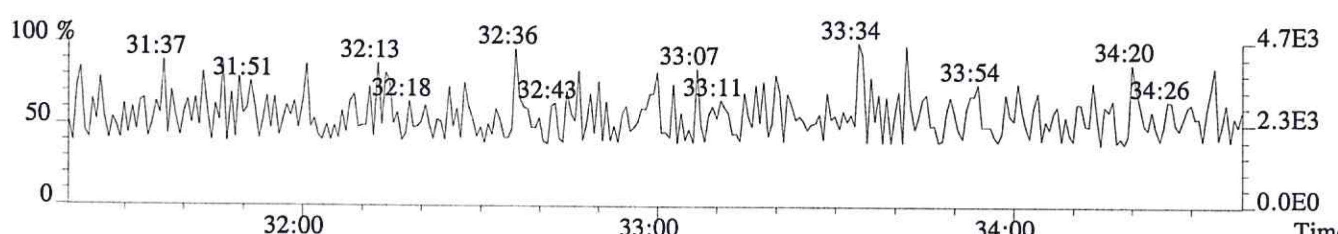
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7456.0,1.00%,F,T)



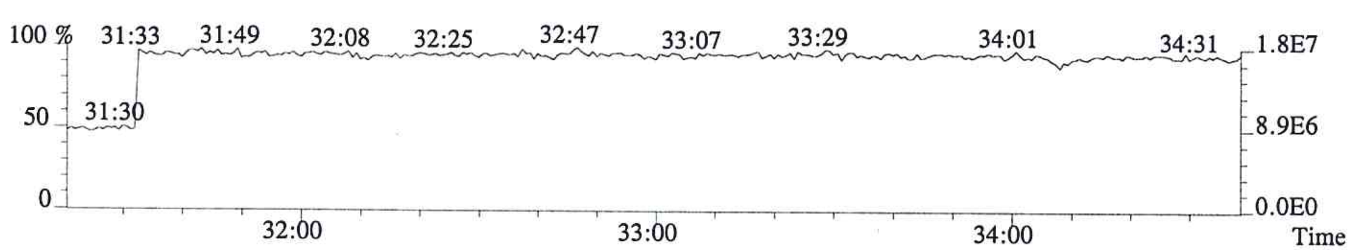
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5756.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

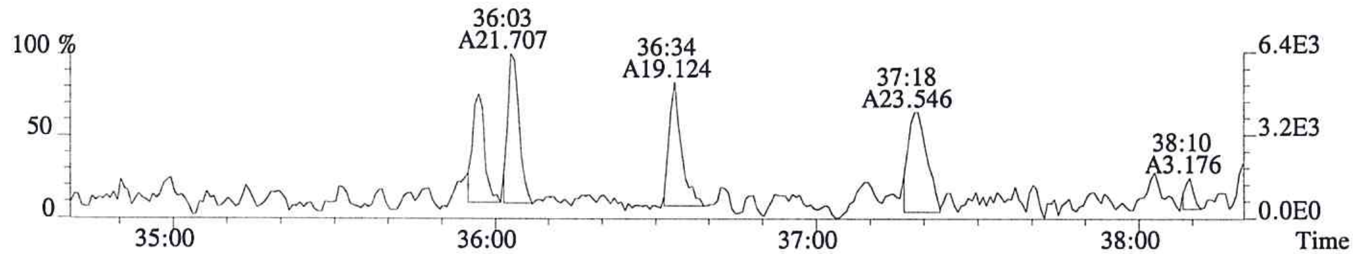


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

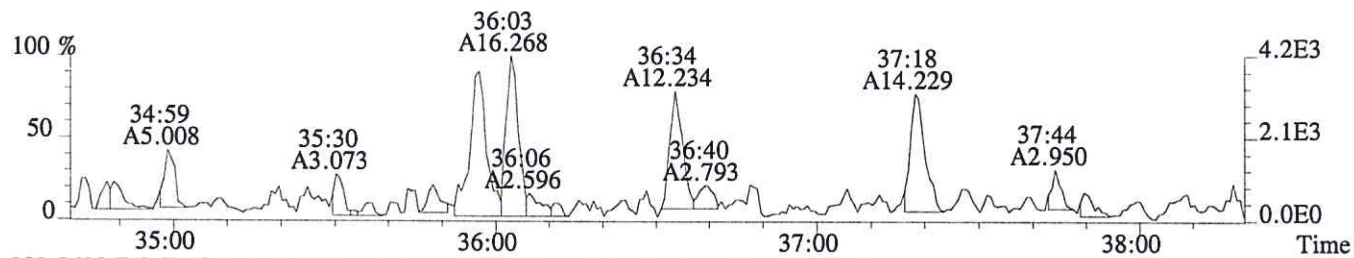


File:P603996 #1-329 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002

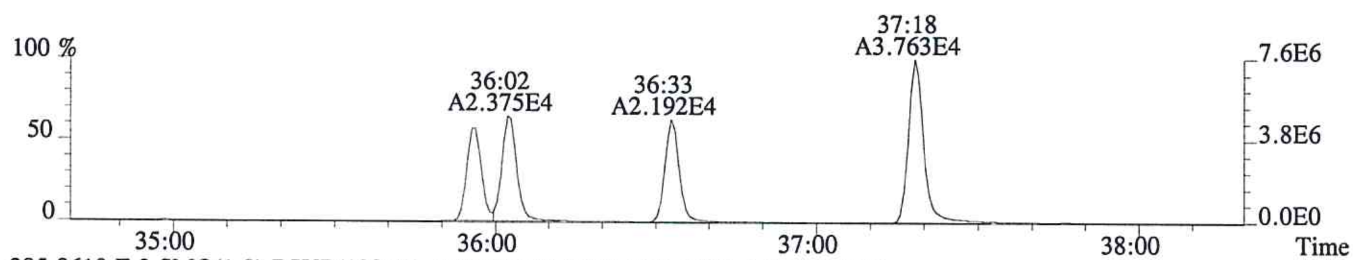
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



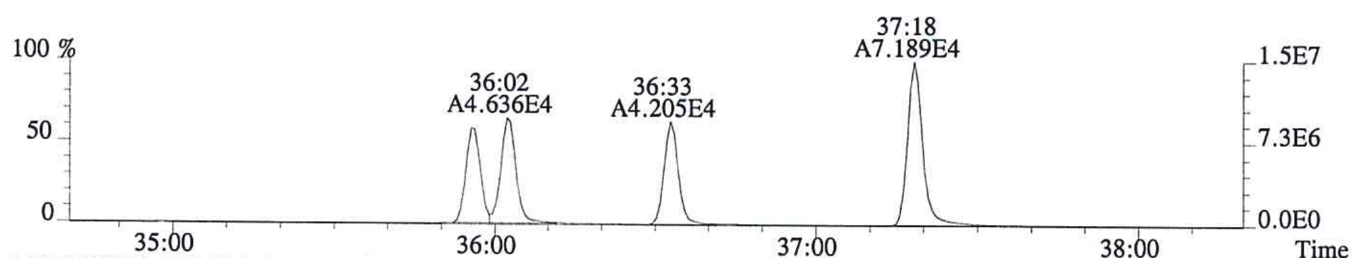
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



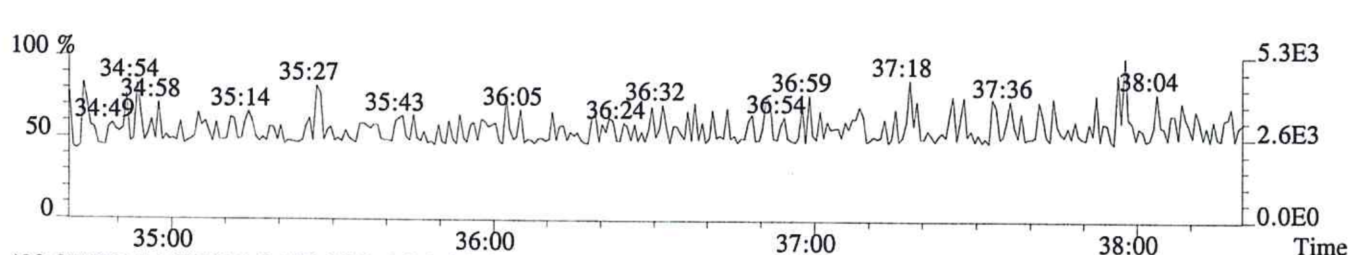
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



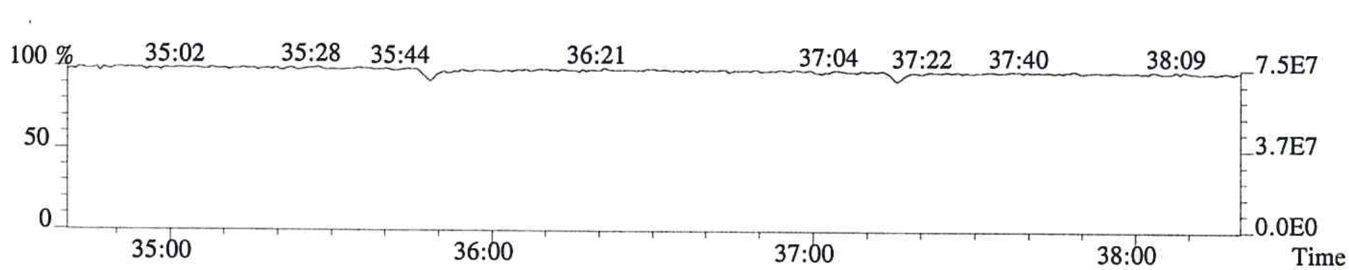
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.40%,F,T)



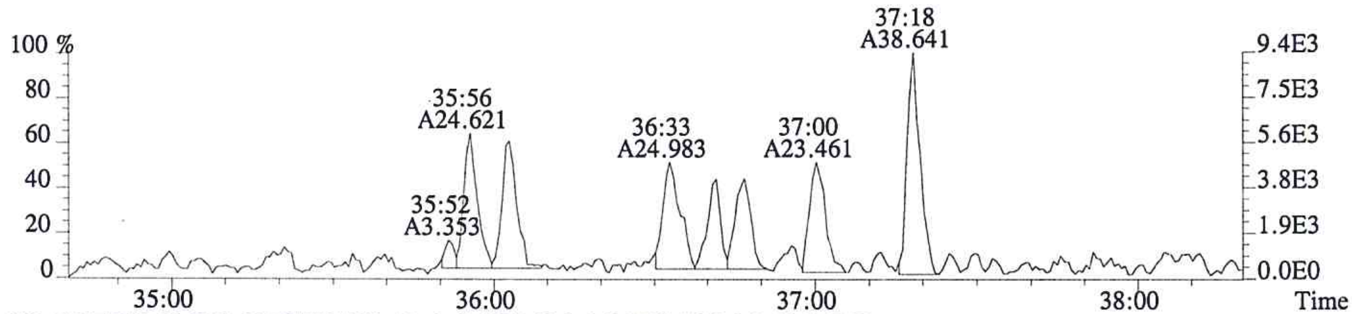
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



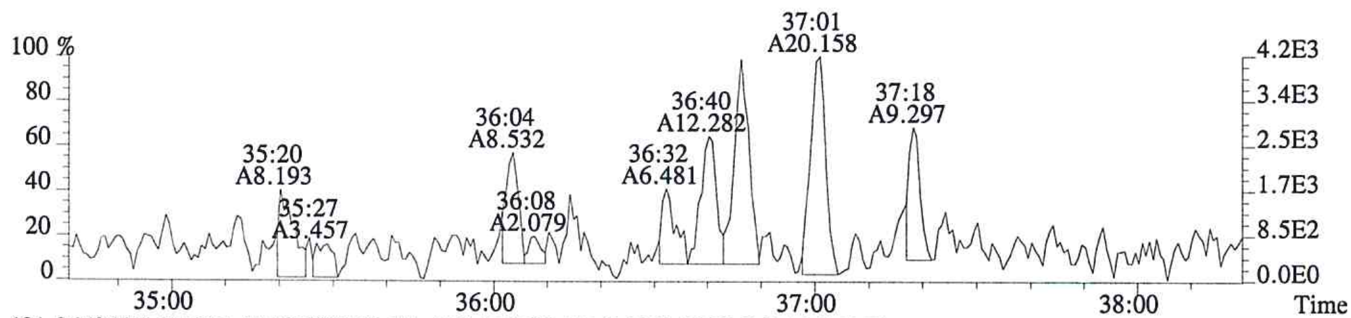
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



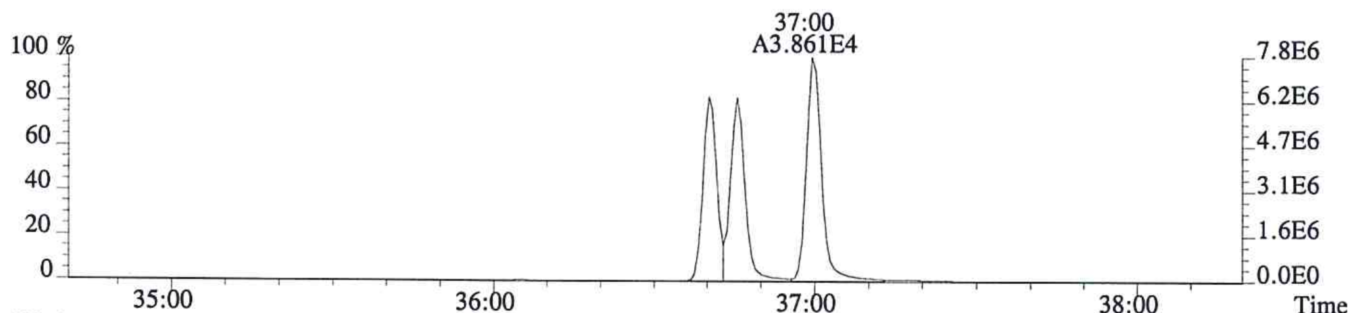
File:P603996 #1-329 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



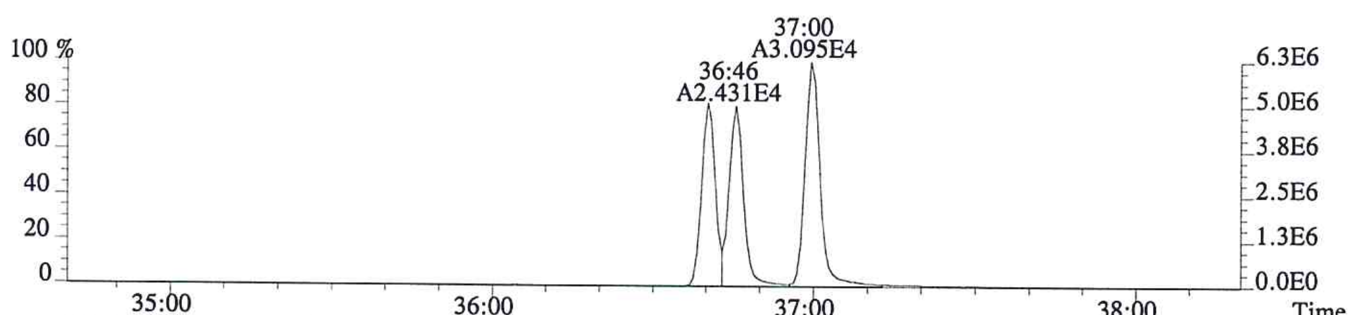
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



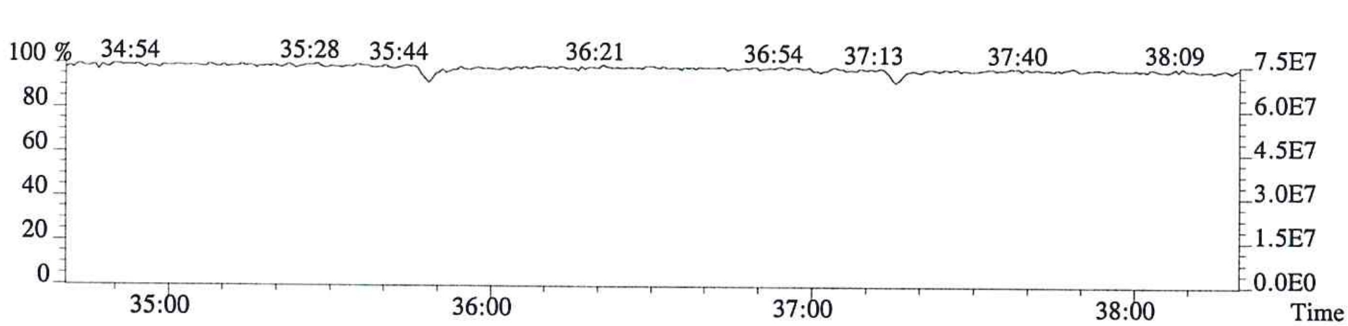
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW2

Run #12 Filename P603997 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:04:16
Processed: 1-JUL-16 12:44:38 Sample ID: E1600326-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.231e+04	4.018e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	4.970e+04	3.103e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.786e+04	2.994e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.480e+04	6.727e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.423e+04	3.062e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.052e+04	3.826e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.787e+04	2.955e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	9.640e+01				no	0.945

EDL (1.30e+03 + 1.12e+03) x 2000 pg 1 x 2.5
TCDD =-- = 1.08 ng/kg
(~~2.423e+04~~ + ~~3.062e+04~~) x 1.0 g x 100/ x 1.048
(4.71e+06 + 5.97e+06)
um 07/05/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW2

Run #12 Filename P603997 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:04:16
Processed: 1-JUL-16 12:44:38 LAB. ID: E1600326-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.04e+02	*	*	2.75e+03	*
3	2,3,4,7,8-PeCDF	*	7.40e+02	*	*	1.69e+03	*
11	2,3,7,8-TCDD	*	1.30e+03	*	*	1.12e+03	*
18	13C-2,3,7,8-TCDF	5.85e+06	4.06e+03	1.4e+03	7.29e+06	3.42e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	9.24e+06	5.38e+03	1.7e+03	5.80e+06	4.14e+03	1.4e+03
20	13C-2,3,4,7,8-PeCDF	9.55e+06	5.38e+03	1.8e+03	5.99e+06	4.14e+03	1.4e+03
24	13C-1,2,3,7,8,9-HxCDF	7.16e+06	9.24e+02	7.7e+03	1.38e+07	1.39e+03	9.9e+03
26	13C-1,2,3,4-TCDF	*	4.06e+03	*	*	3.42e+03	*
27	13C-2,3,7,8-TCDD	4.71e+06	7.71e+03	6.1e+02	5.97e+06	4.52e+03	1.3e+03
33	13C-1,2,3,4-TCDD	5.80e+06	7.71e+03	7.5e+02	7.27e+06	4.52e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	7.71e+06	2.28e+03	3.4e+03	6.03e+06	1.51e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	1.99e+04	1.77e+03	1.1e+01			

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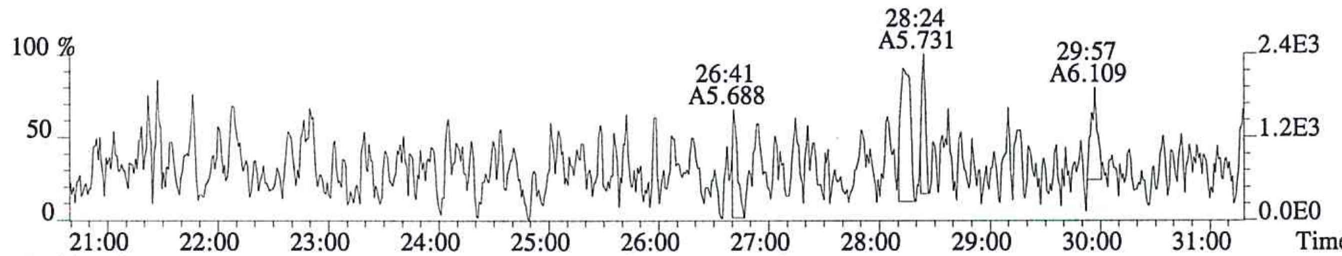
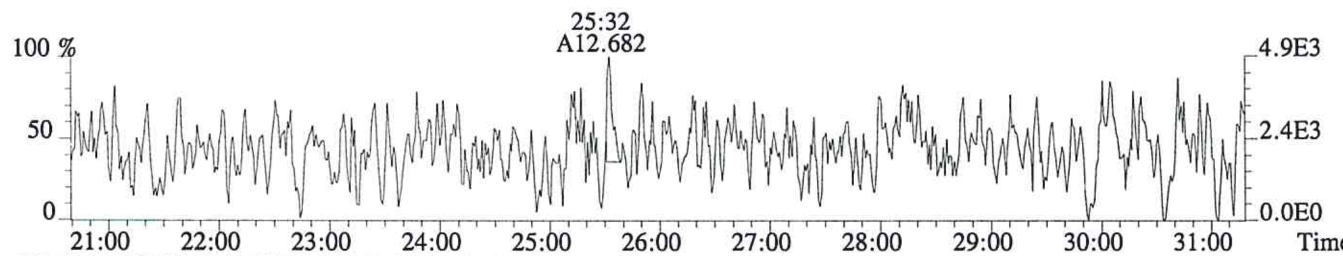
www.alsglobal.com

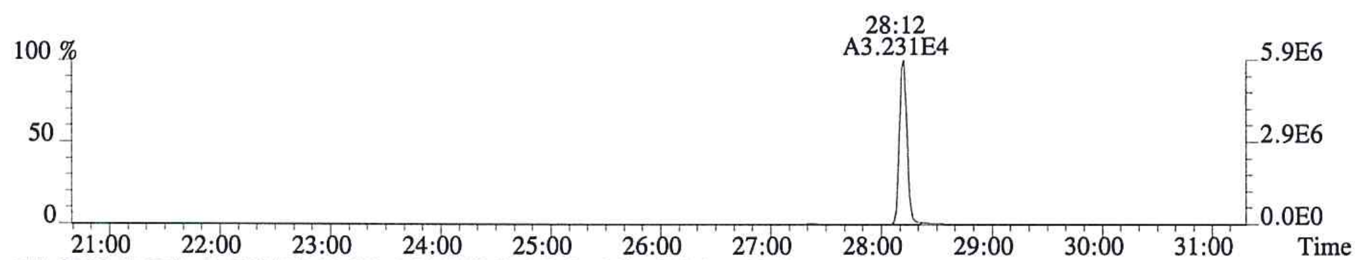
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



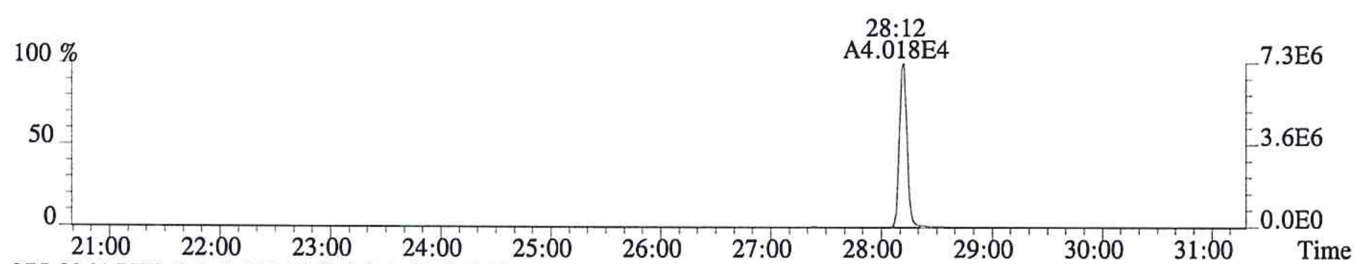
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2752.0,1.00%,F,T)



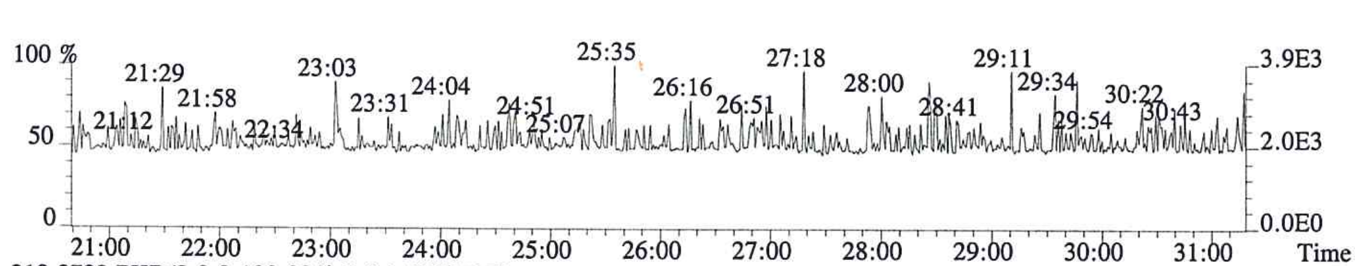
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4060.0,1.00%,F,T)



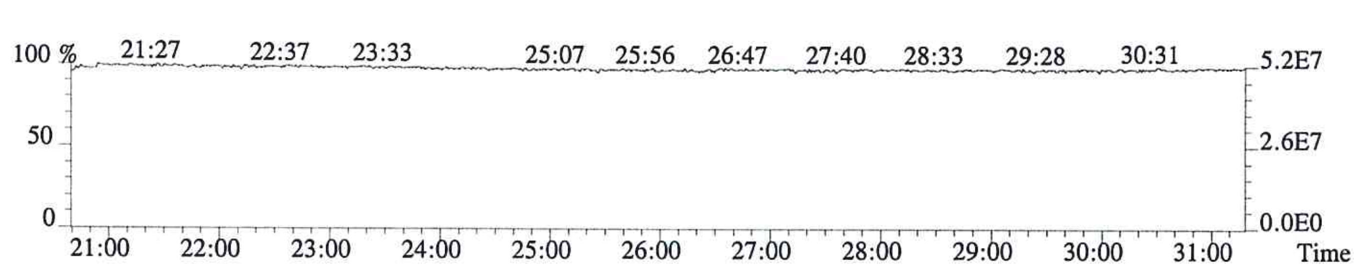
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3420.0,1.00%,F,T)



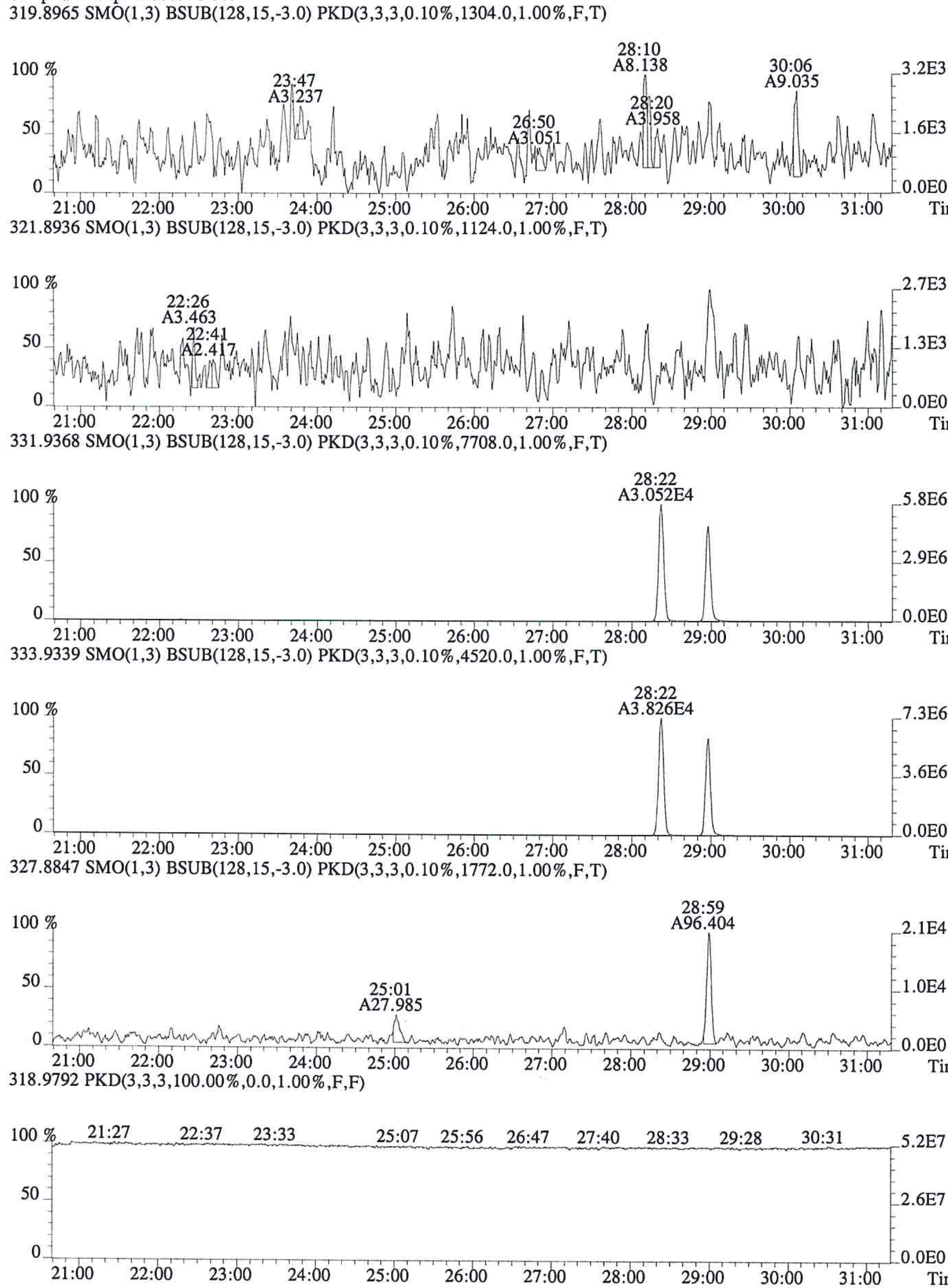
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



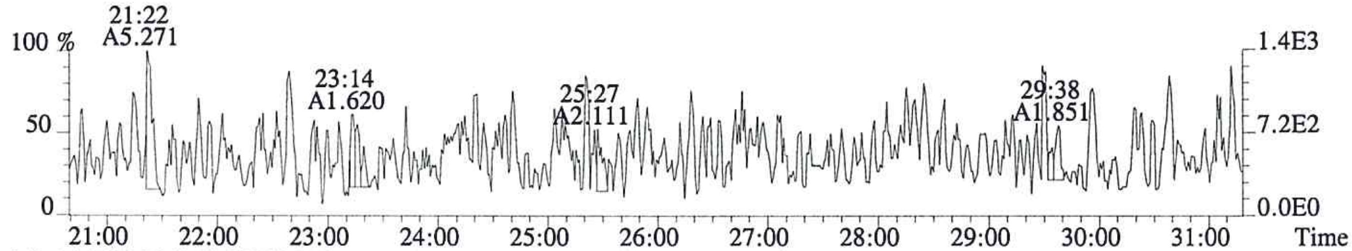
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



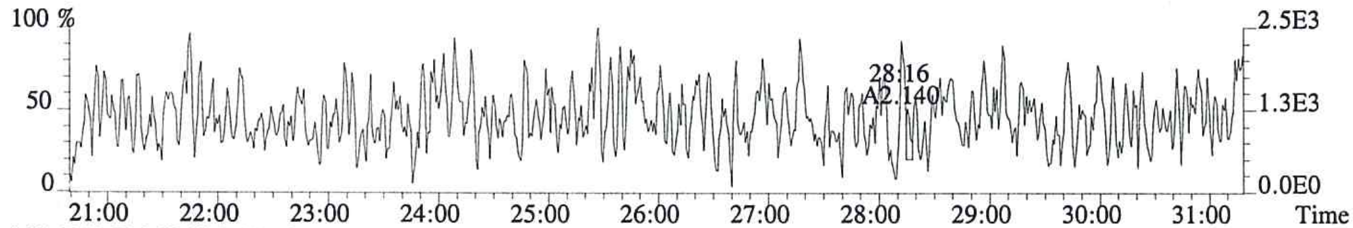
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003



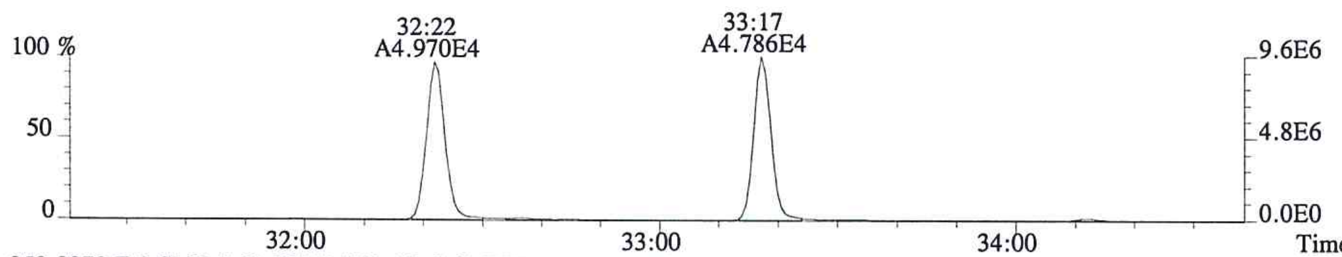
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



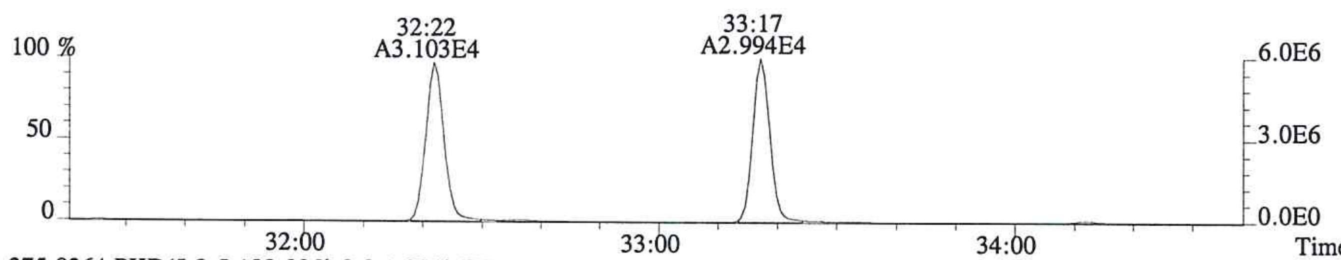
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



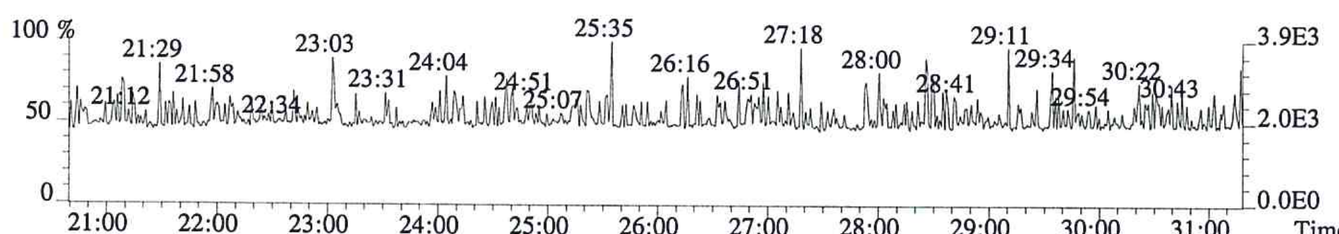
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5376.0,1.00%,F,T)



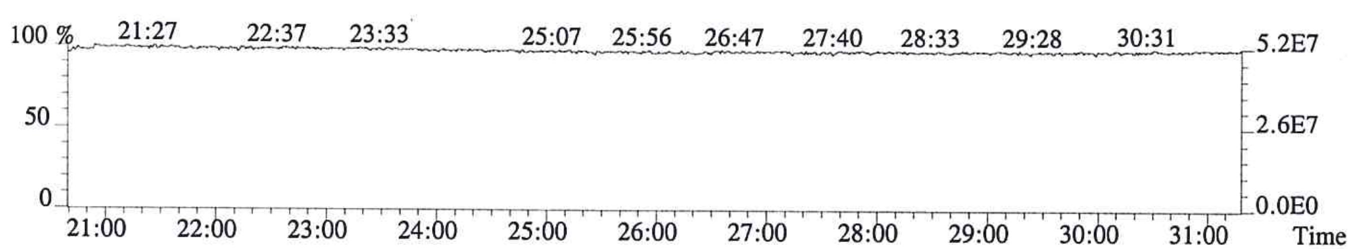
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

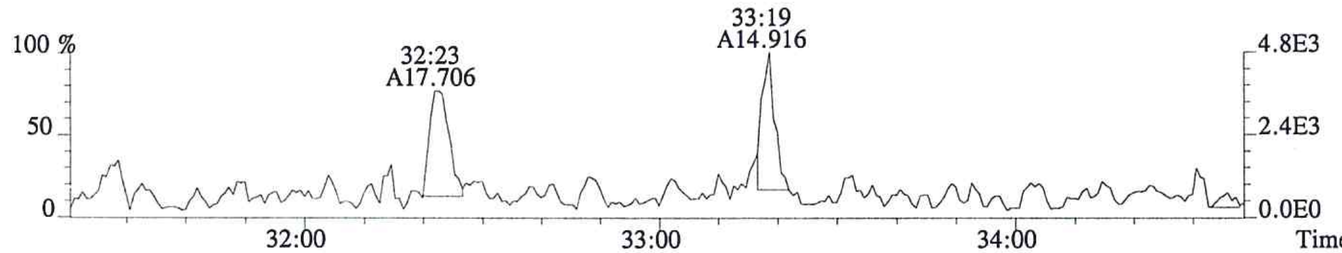


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

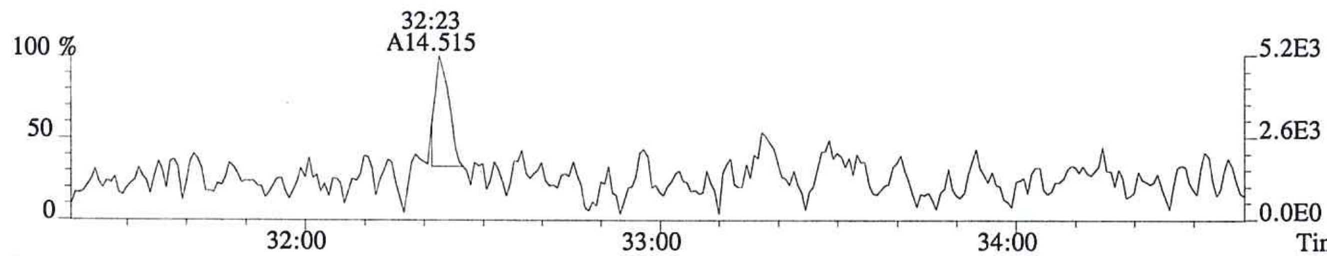


File:P603997 #1-298 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003

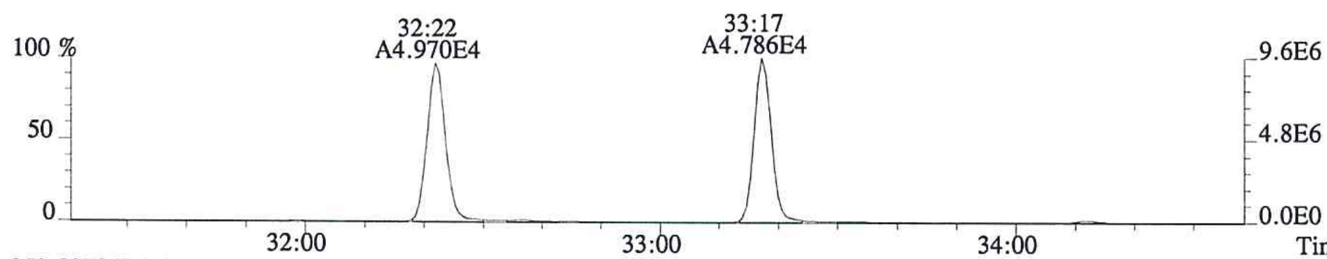
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



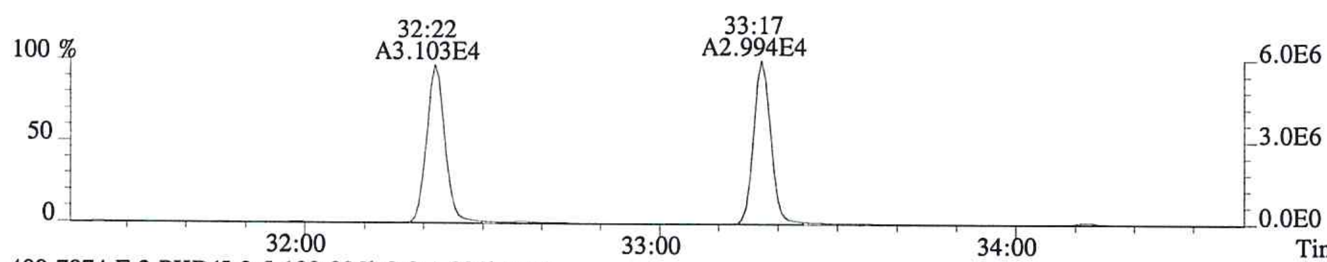
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



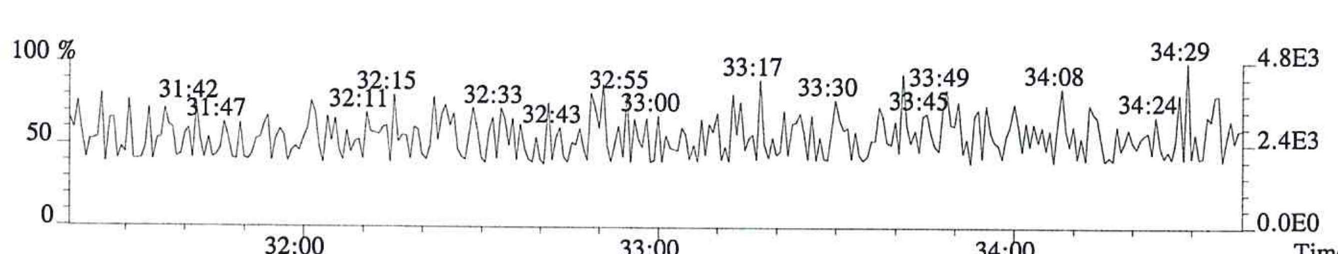
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5376.0,1.00%,F,T)



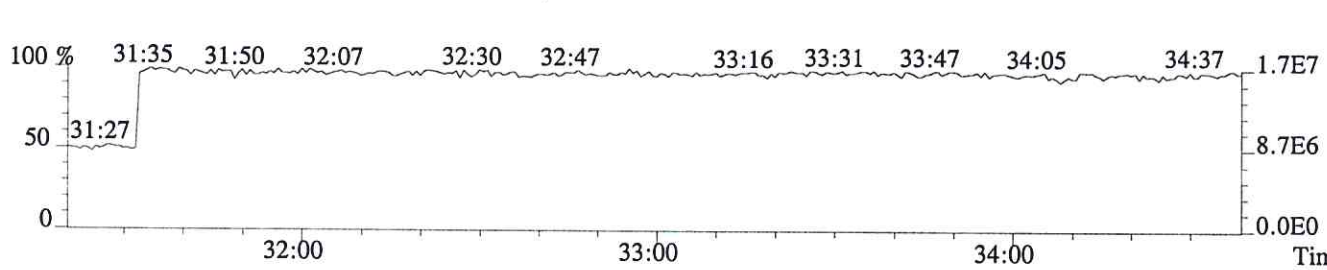
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



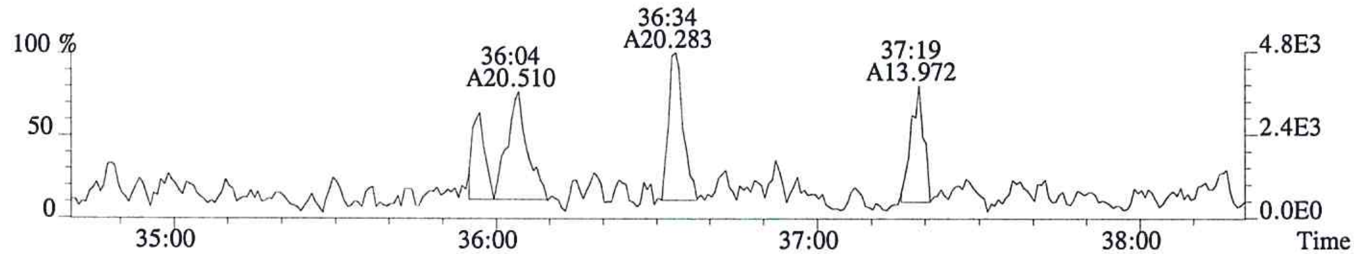
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



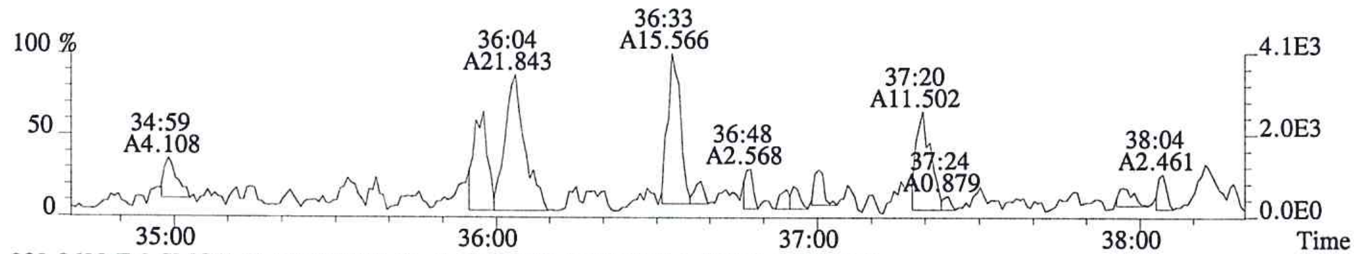
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



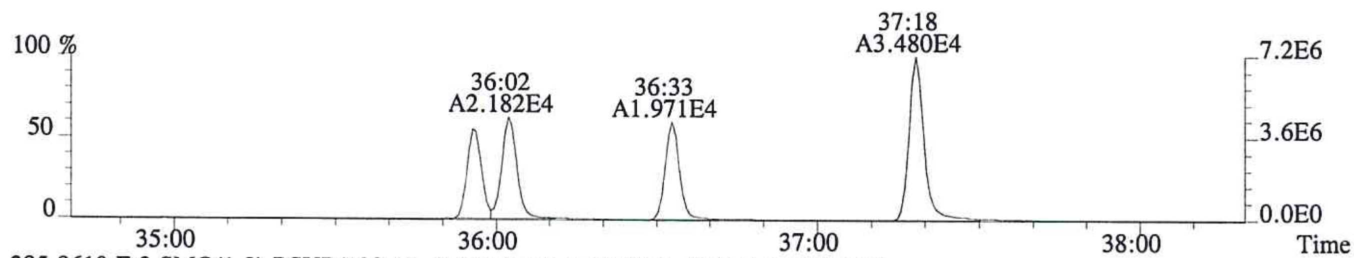
File:P603997 #1-329 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



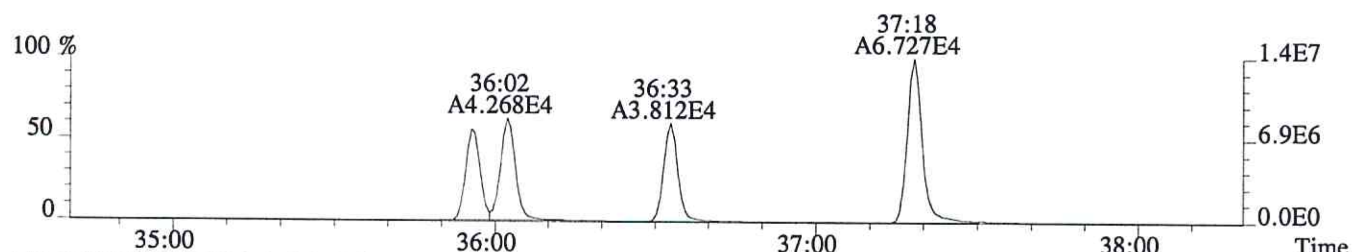
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



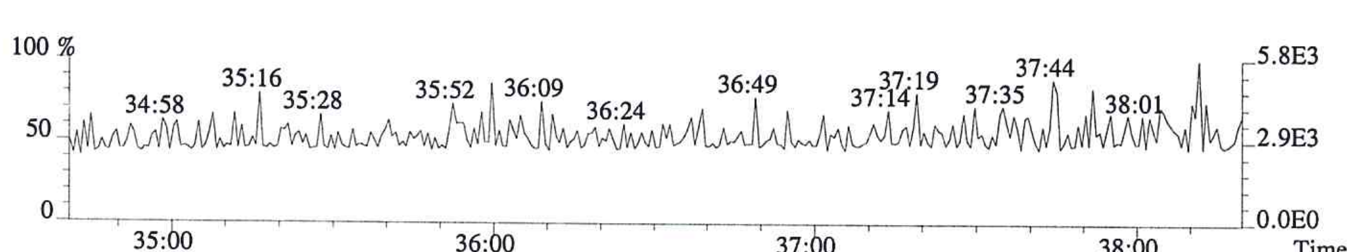
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



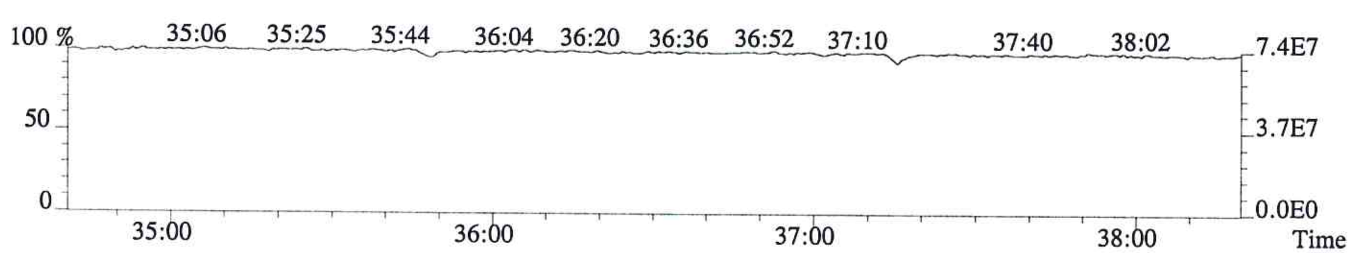
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



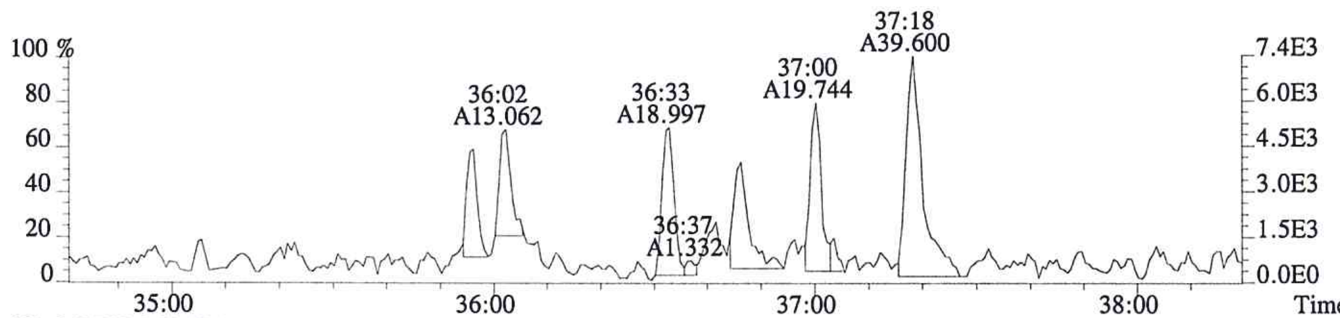
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



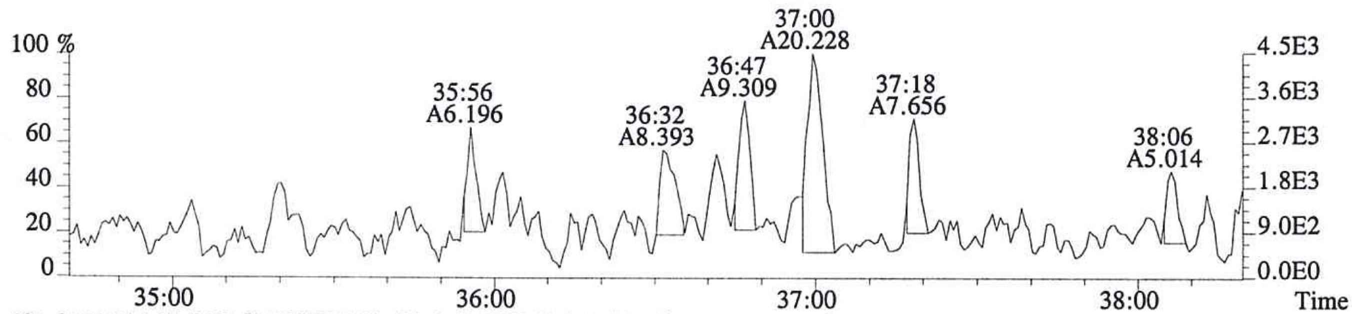
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



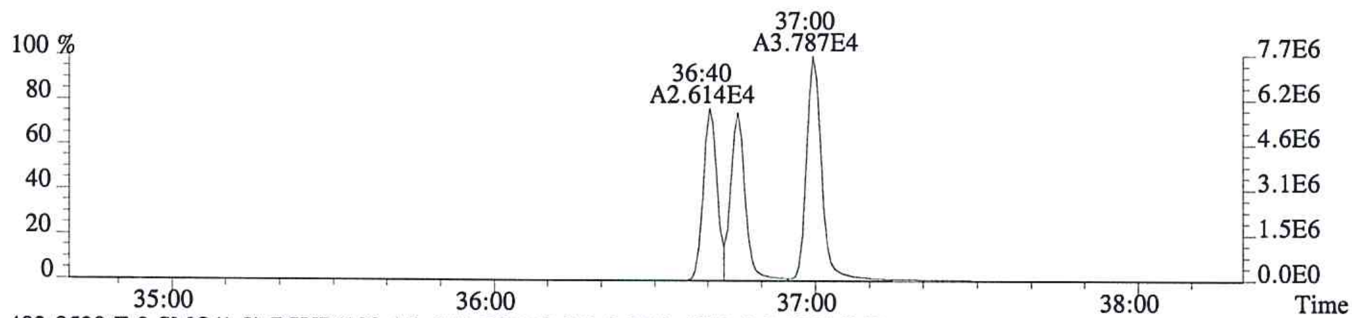
File:P603997 #1-329 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



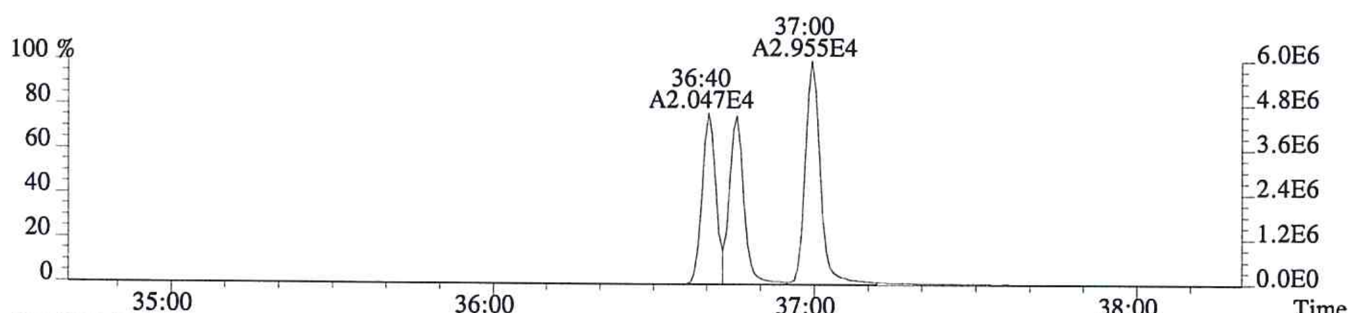
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



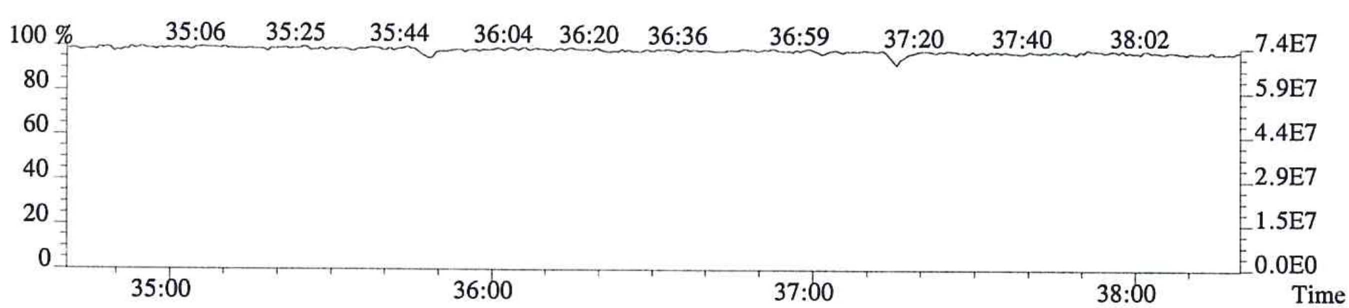
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



CLIENT ID.
04072016SJGW10

Run #13 Filename P603998 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:53:17
Processed: 1-JUL-16 13:08:58 Sample ID: E1600326-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.359e+04	1.695e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	2.408e+04	1.495e+04	1.61	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.256e+03	2.706e+03	1.57	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.685e+04	3.265e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	3.955e+03	5.107e+03	0.77	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	9.323e+03	1.181e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.924e+04	3.647e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.441e+04	2.686e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	2.822e+03				no	0.945

EDL

(1.25e+03 + 1.40e+03) x ~~2000~~ 1000 pg 1 x 2.5
TCDD = -- = 1.59 ng/kg
(~~9.323e+03~~ + ~~1.181e+04~~) x 1.0 g x 100 / x 1.048
(1.75e+06 + 2.21e+06)

LW 07/06/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW10

Run #13 Filename P603998 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:53:17
Processed: 1-JUL-16 13:08:58 LAB. ID: E1600326-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.20e+02	*	*	3.03e+03	*
3	2,3,4,7,8-PeCDF	*	9.12e+02	*	*	1.63e+03	*
11	2,3,7,8-TCDD	*	1.25e+03	*	*	1.40e+03	*
18	13C-2,3,7,8-TCDF	2.42e+06	4.94e+03	4.9e+02	3.02e+06	3.40e+03	8.9e+02
19	13C-1,2,3,7,8-PeCDF	4.49e+06	3.21e+03	1.4e+03	2.78e+06	2.63e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	8.20e+05	3.21e+03	2.6e+02	5.18e+05	2.63e+03	2.0e+02
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	1.14e+03	2.9e+03	6.41e+06	1.91e+03	3.4e+03
26	13C-1,2,3,4-TCDF	6.63e+05	4.94e+03	1.3e+02	8.43e+05	3.40e+03	2.5e+02
27	13C-2,3,7,8-TCDD	1.75e+06	6.93e+03	2.5e+02	2.21e+06	2.89e+03	7.7e+02
33	13C-1,2,3,4-TCDD	5.39e+06	6.93e+03	7.8e+02	6.68e+06	2.89e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	7.10e+06	2.29e+03	3.1e+03	5.66e+06	1.40e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	5.35e+05	1.36e+03	3.9e+02			

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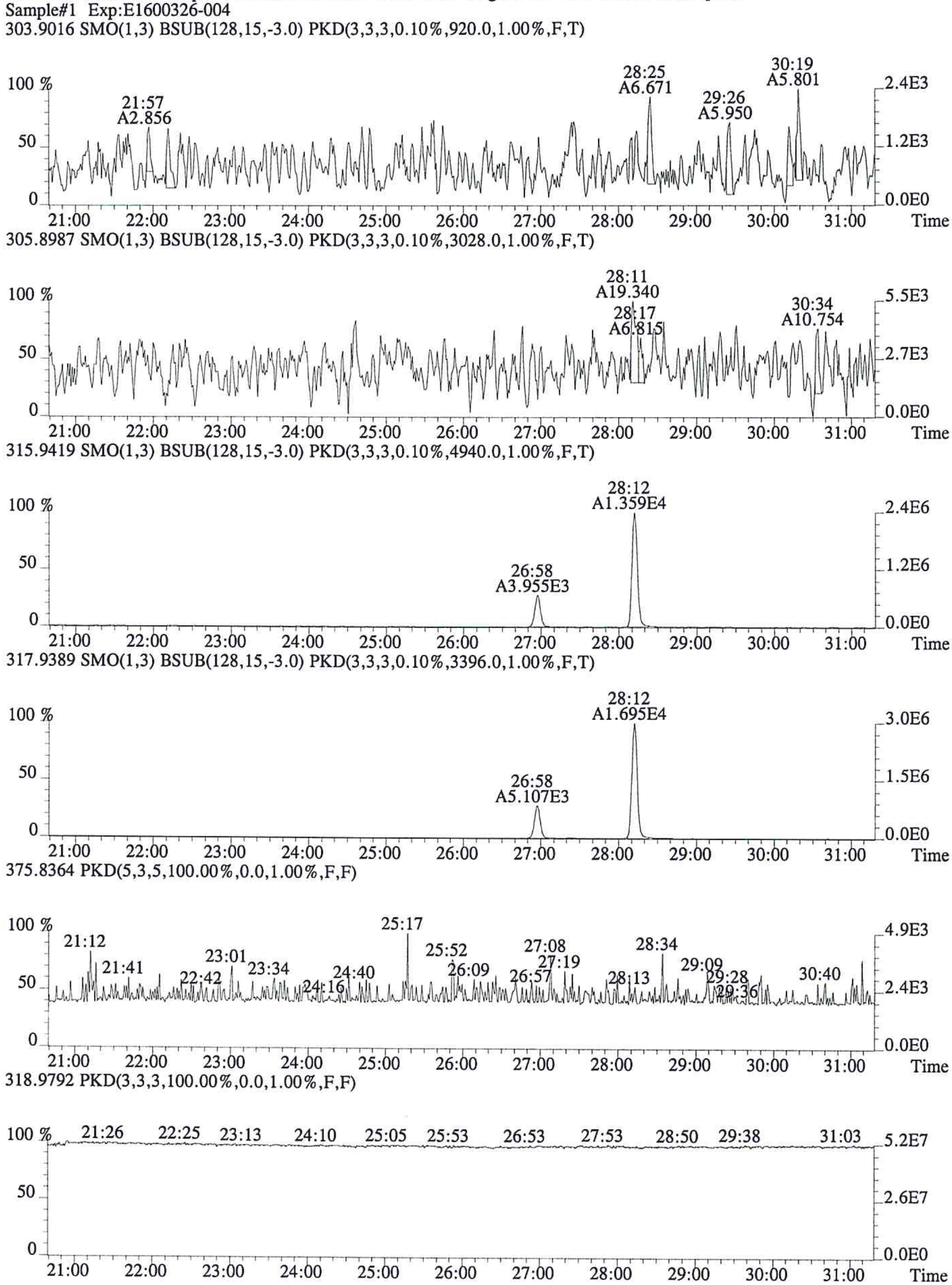
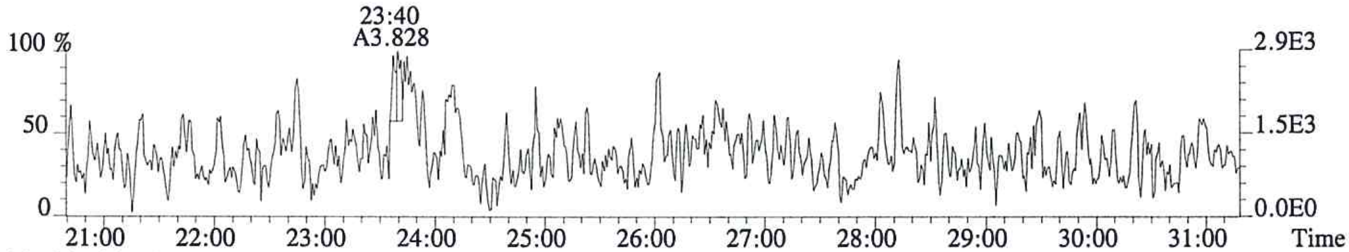
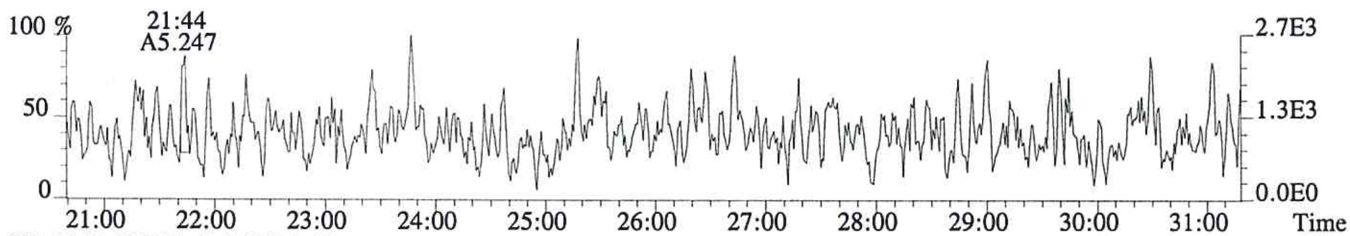
File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004



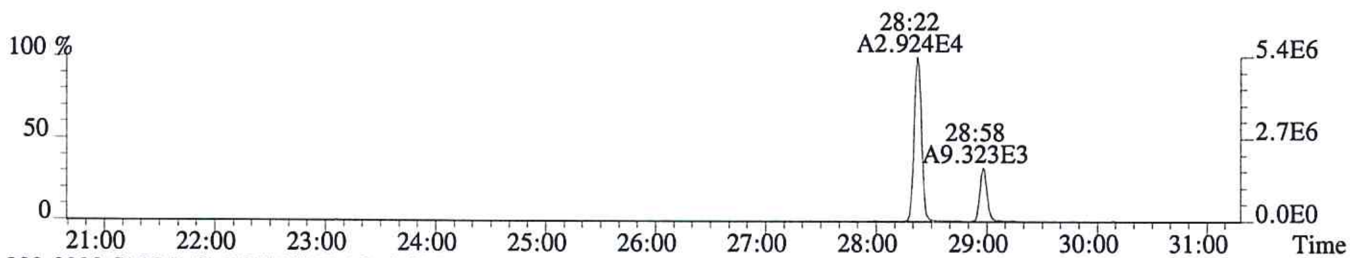
File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



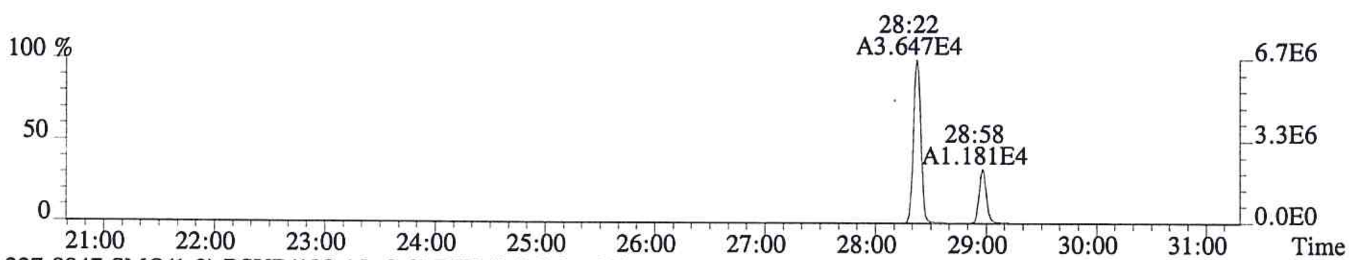
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



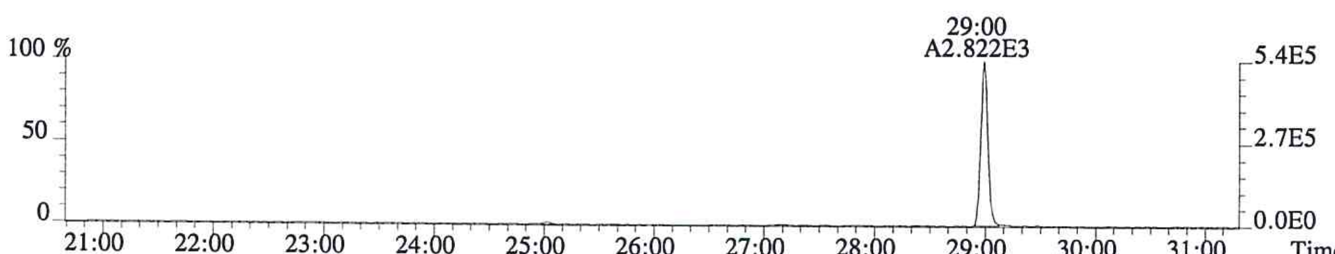
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6928.0,1.00%,F,T)



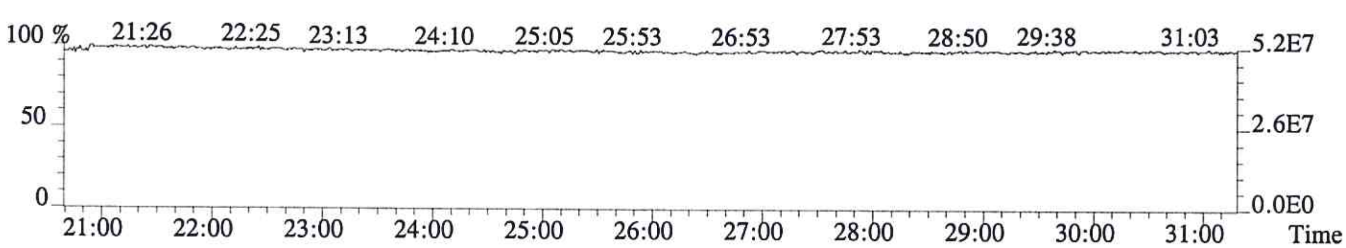
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2892.0,1.00%,F,T)



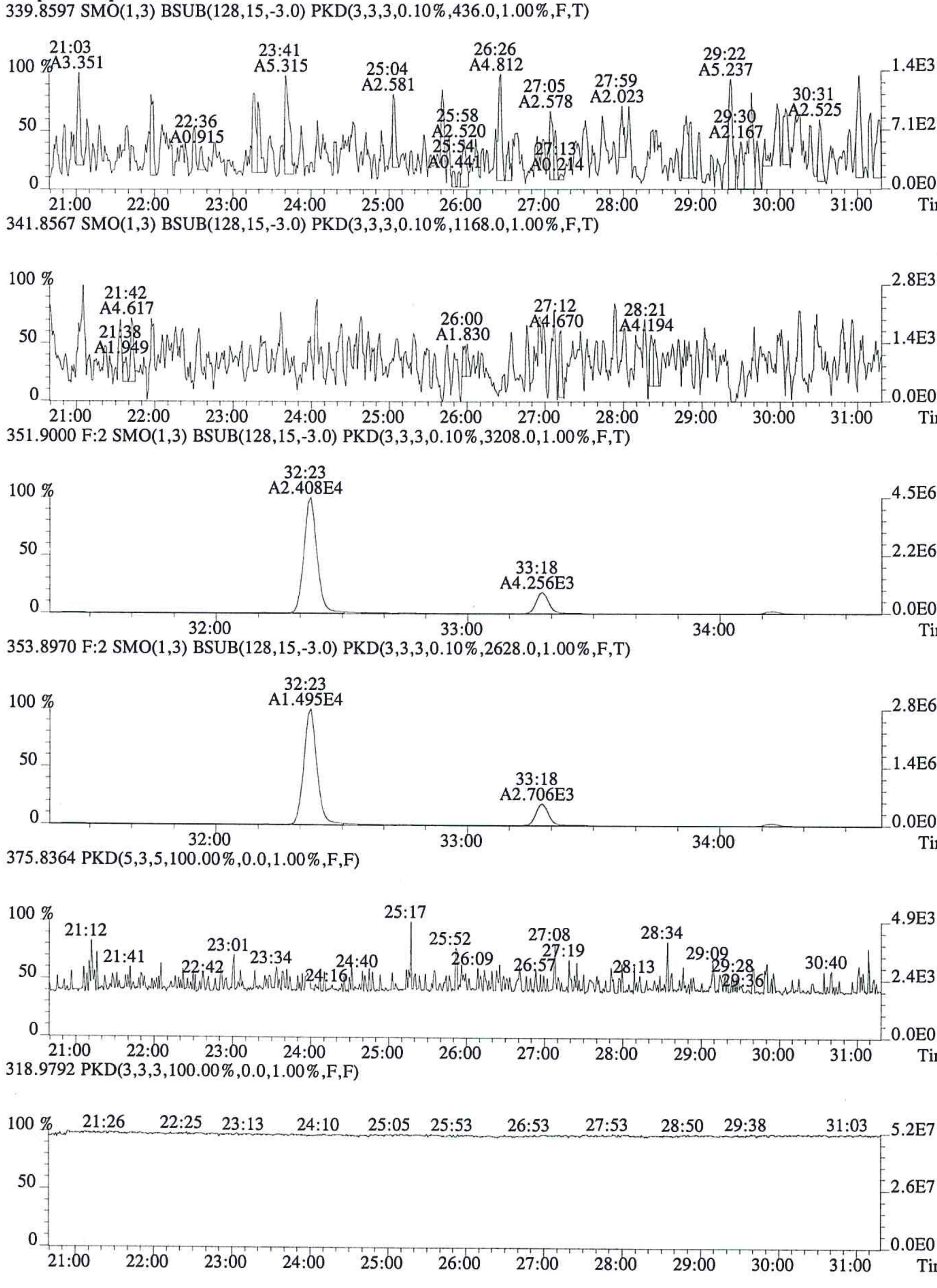
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



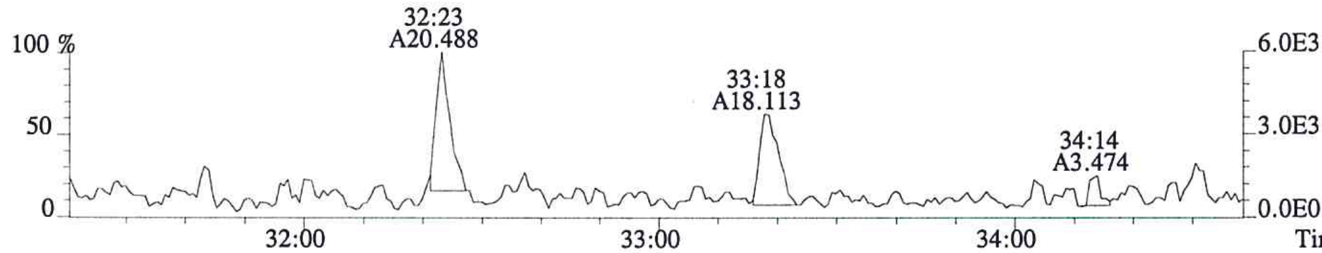
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



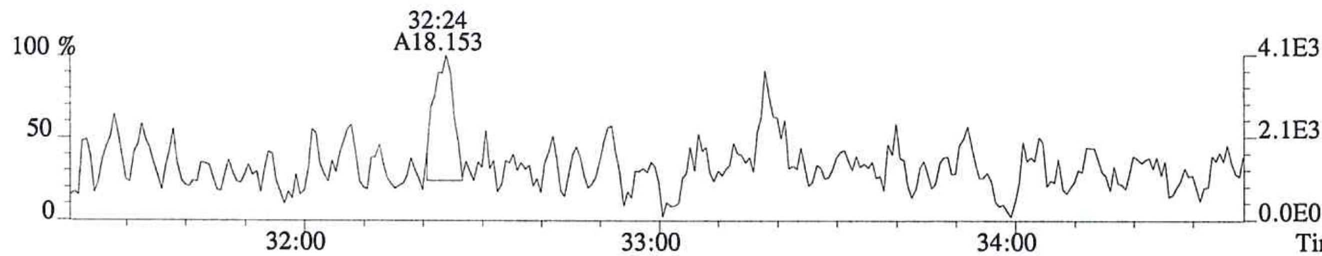
File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004



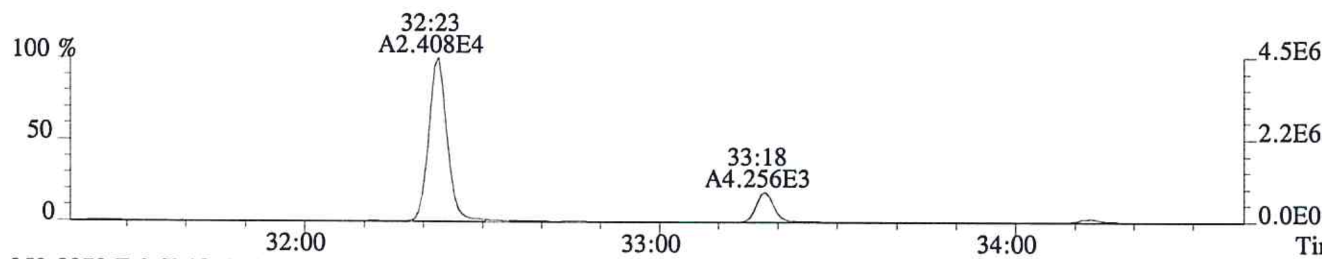
File:P603998 #1-298 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



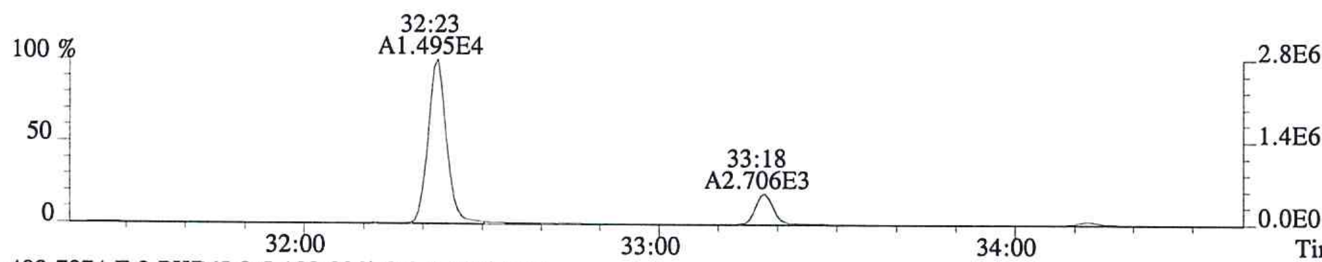
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



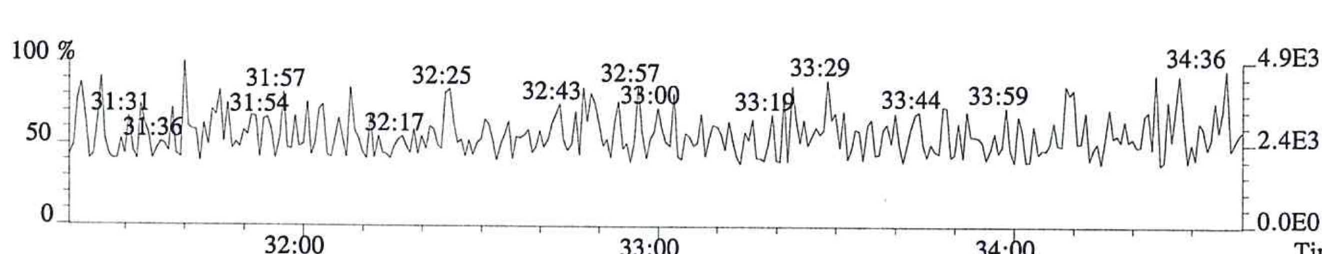
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



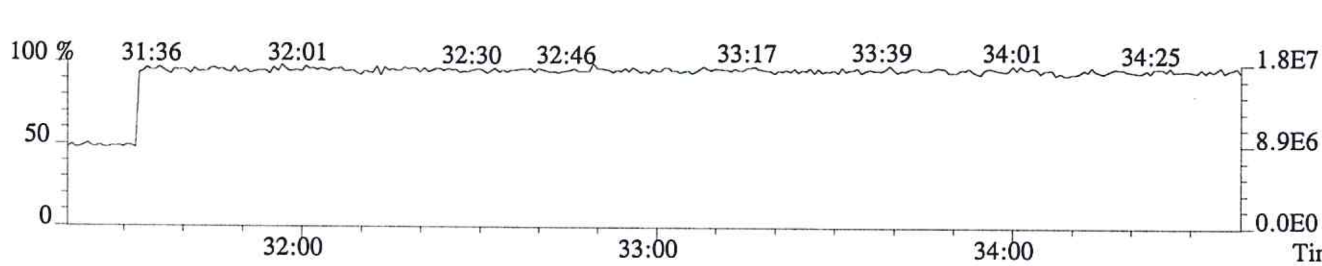
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



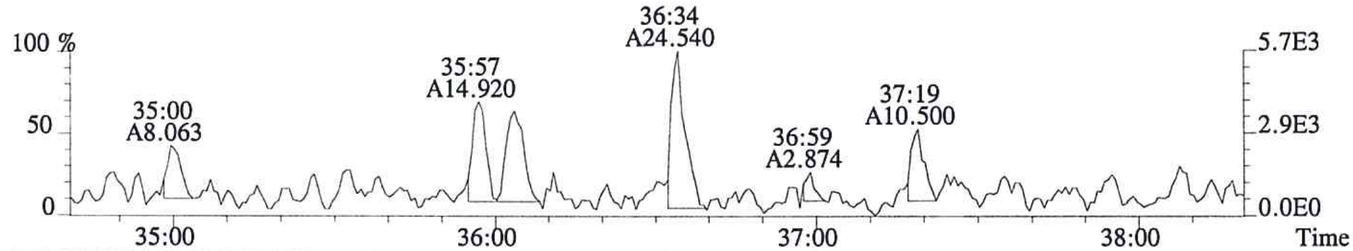
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



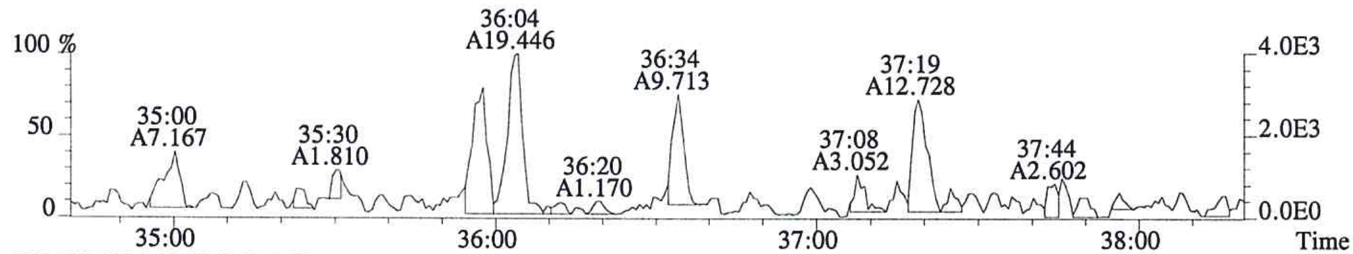
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



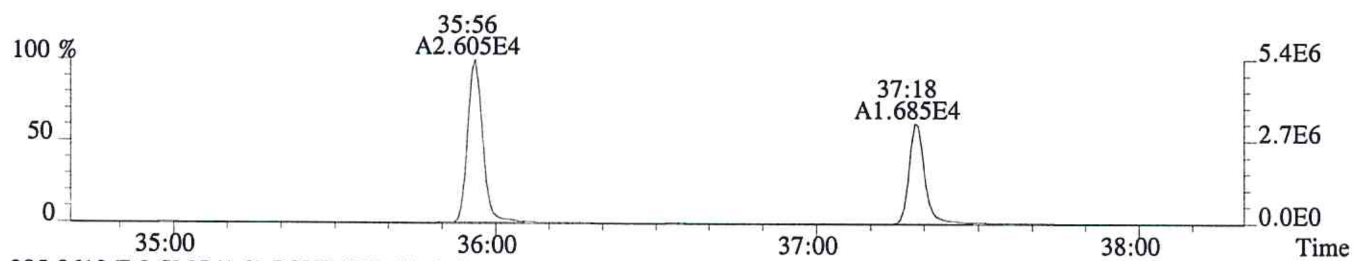
File:P603998 #1-329 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



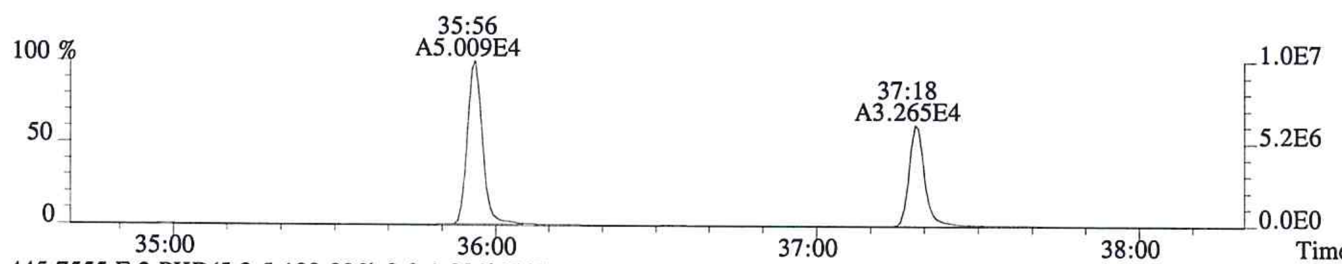
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



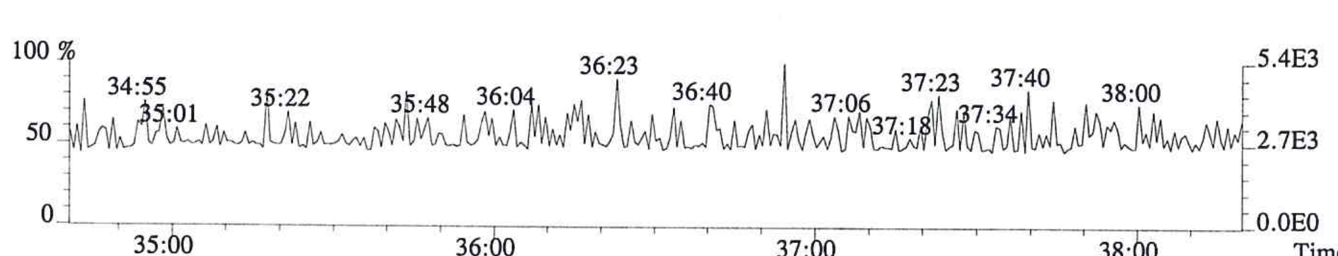
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



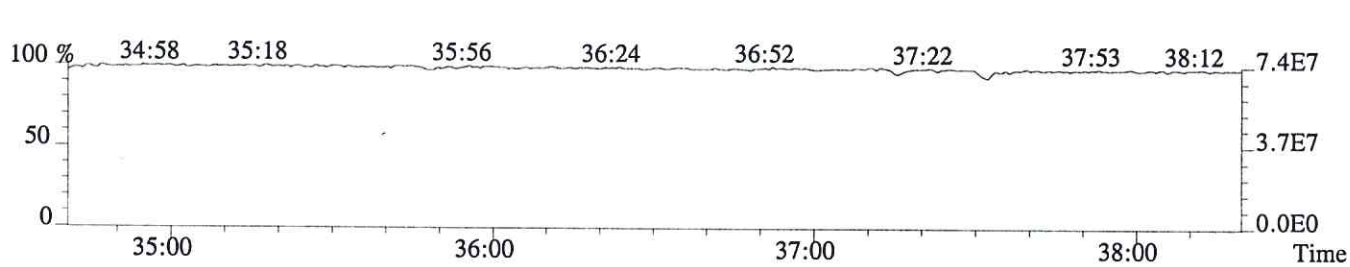
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1912.0,0.40%,F,T)



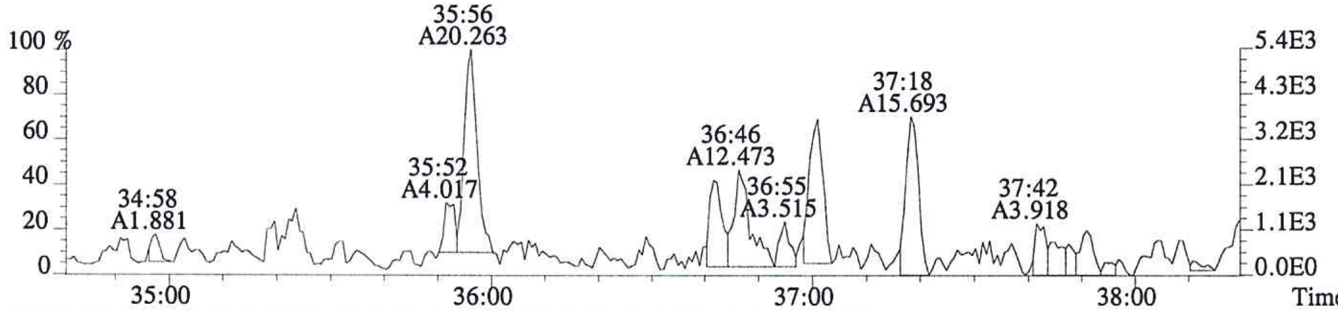
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



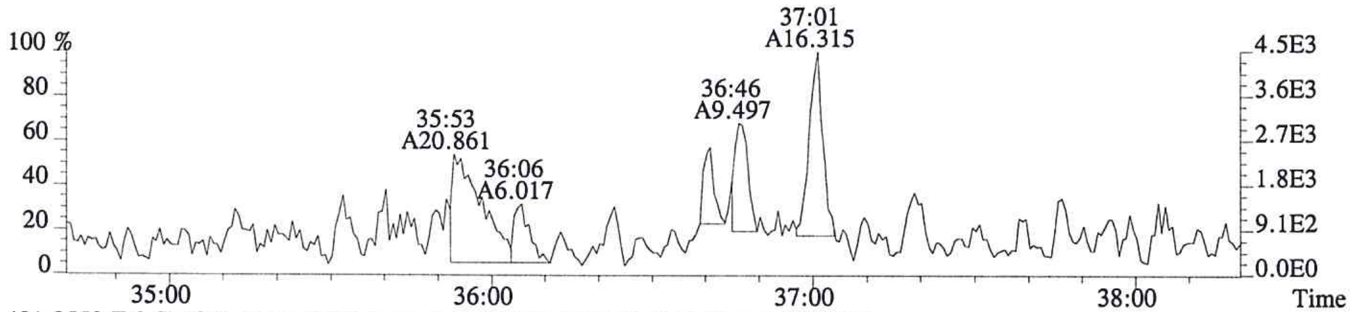
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



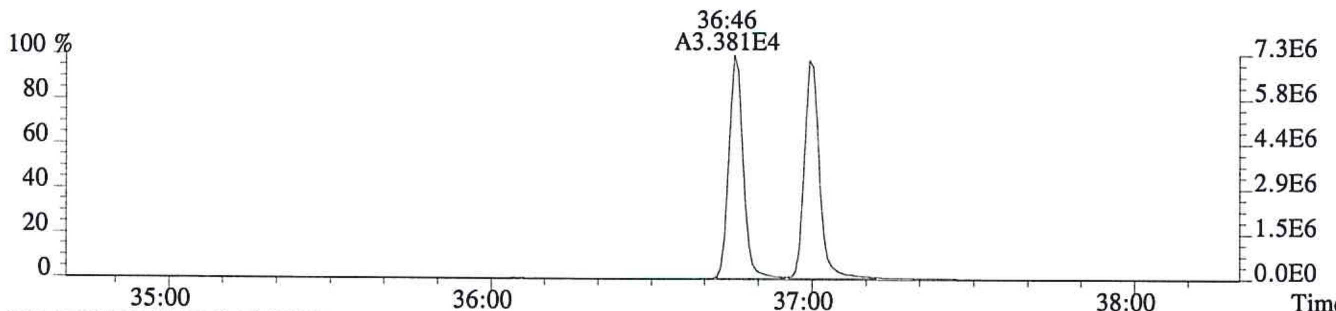
File:P603998 #1-329 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



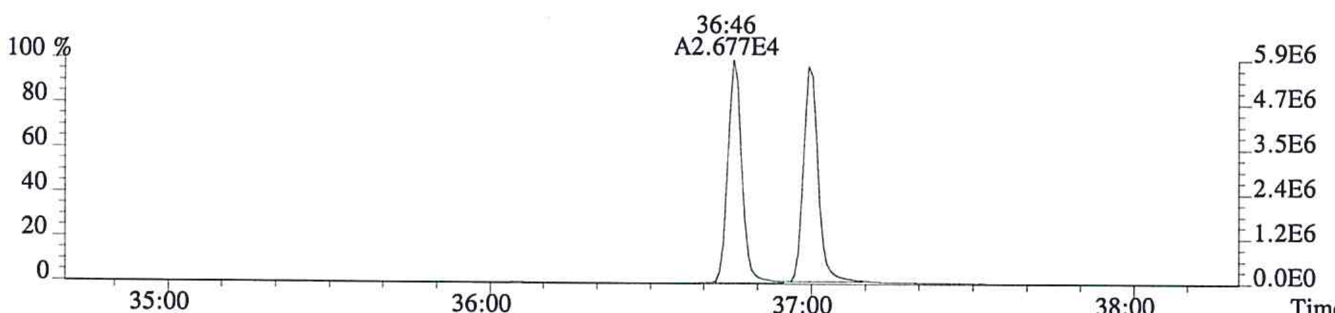
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



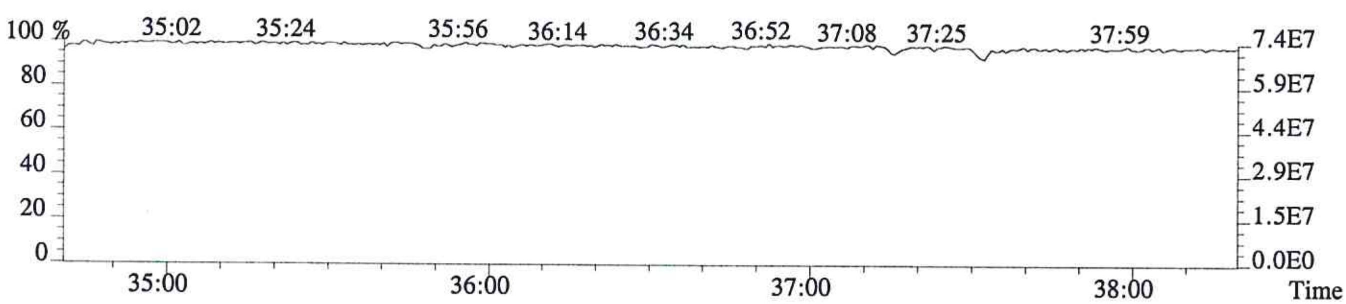
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2292.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW11

Run #14 Filename P603999 Samp: 1 Inj: 1 Acquired: 26-JUN-16 00:42:18
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.162e+04	1.459e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.080e+04	1.302e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	3.797e+03	2.344e+03	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.588e+04	3.078e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	3.516e+03	4.443e+03	0.79	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	8.145e+03	1.038e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.967e+04	3.712e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.444e+04	2.709e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	2.498e+03				no	0.945

EDL (1.02e+03 + 1.50e+03) x 1000 pg 1 x2.5
TCDD = -- = 1.707 ng/kg
(~~8.145e+03~~ + ~~1.038e+04~~) x 1.0 g x 100 / x 1.048
(1.55e+06 + 1.97e+06)
UW 07/06/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW11

Run #14 Filename P603999 Samp: 1 Inj: 1 Acquired: 26-JUN-16 00:42:18
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.06e+03	*	*	3.26e+03	*
3	2,3,4,7,8-PeCDF	*	7.08e+02	*	*	1.71e+03	*
11	2,3,7,8-TCDD	*	1.02e+03	*	*	1.50e+03	*
18	13C-2,3,7,8-TCDF	2.08e+06	4.30e+03	4.9e+02	2.61e+06	2.58e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	3.85e+06	3.39e+03	1.1e+03	2.42e+06	1.28e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	7.09e+05	3.39e+03	2.1e+02	4.57e+05	1.28e+03	3.6e+02
24	13C-1,2,3,7,8,9-HxCDF	3.15e+06	8.80e+02	3.6e+03	6.03e+06	2.00e+03	3.0e+03
26	13C-1,2,3,4-TCDF	5.92e+05	4.30e+03	1.4e+02	7.52e+05	2.58e+03	2.9e+02
27	13C-2,3,7,8-TCDD	1.55e+06	7.41e+03	2.1e+02	1.97e+06	3.82e+03	5.2e+02
33	13C-1,2,3,4-TCDD	5.65e+06	7.41e+03	7.6e+02	7.02e+06	3.82e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.28e+06	1.40e+03	5.2e+03	5.70e+06	1.37e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	4.57e+05	2.10e+03	2.2e+02			

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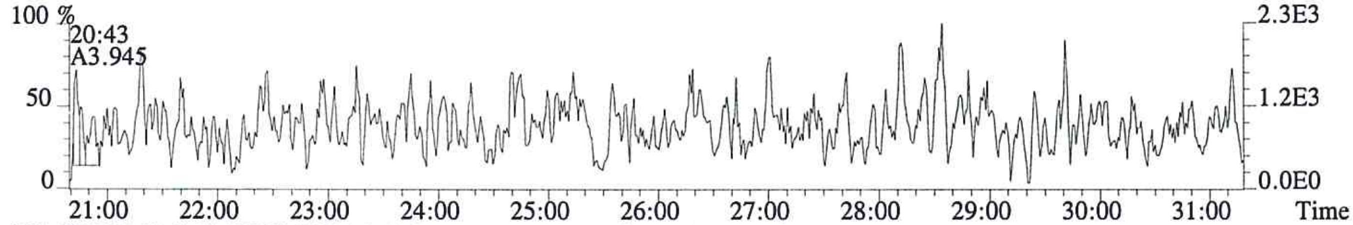
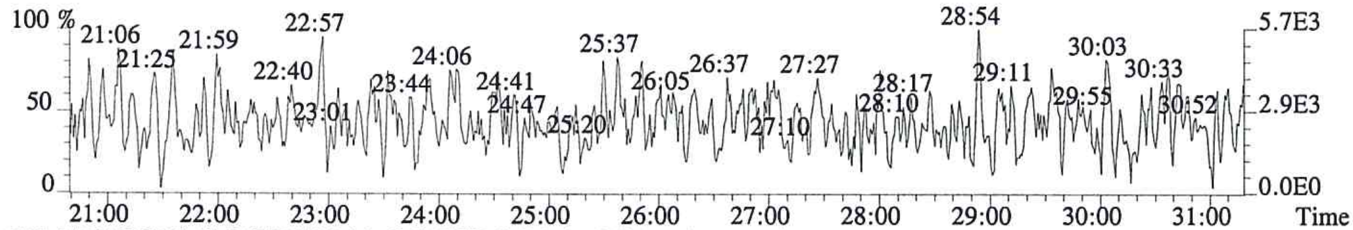
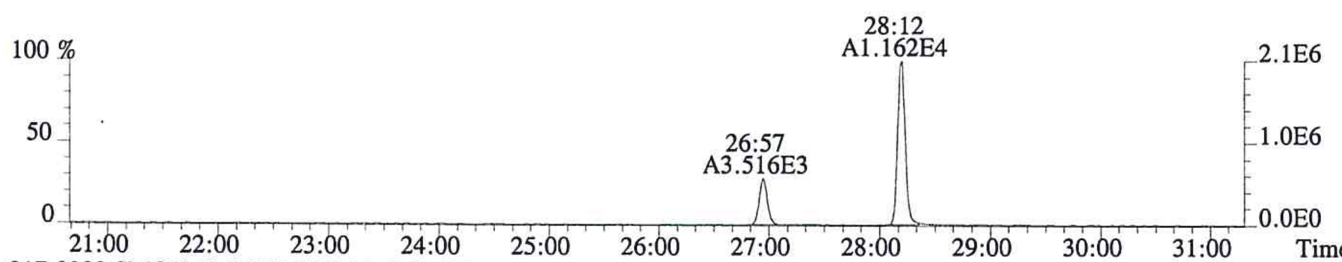
File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



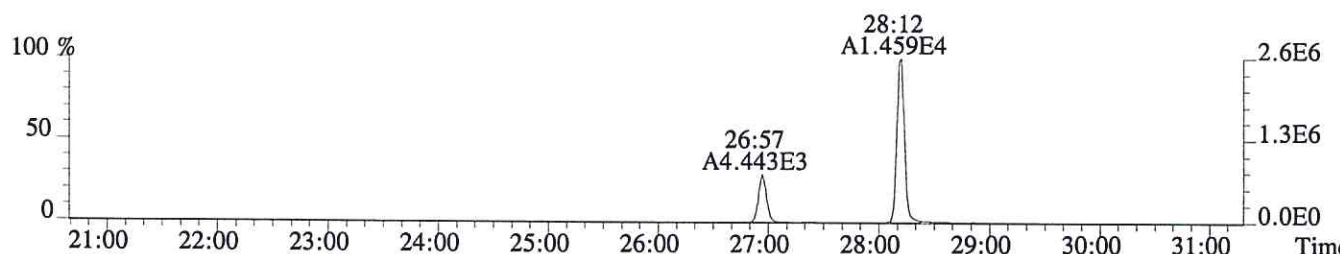
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



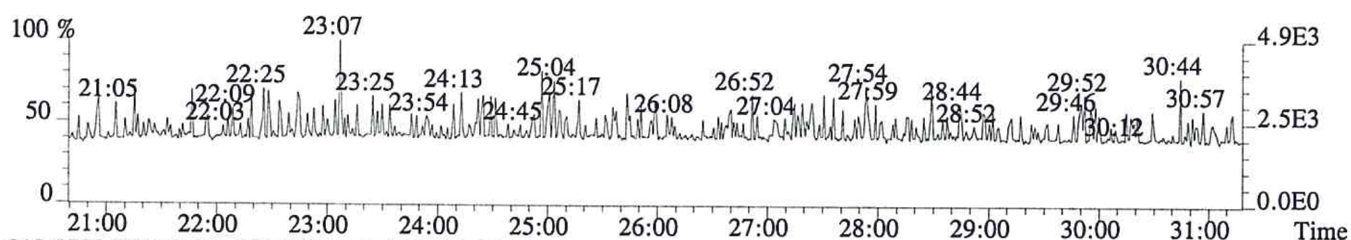
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4296.0,1.00%,F,T)



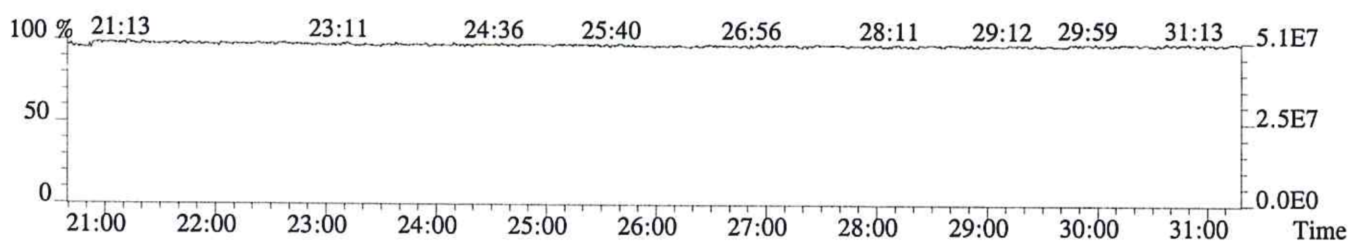
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

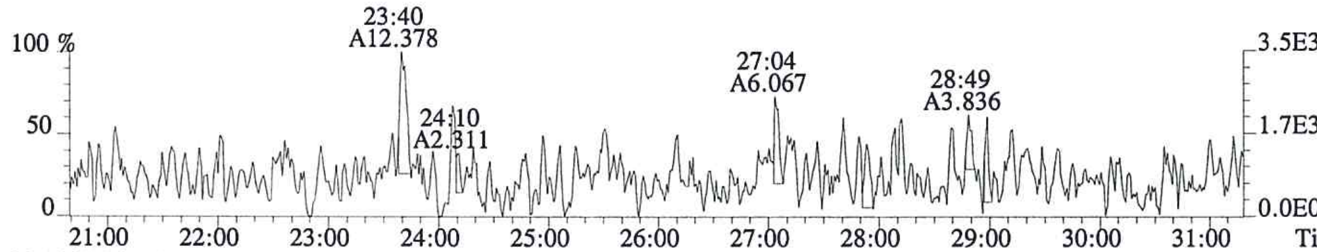


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

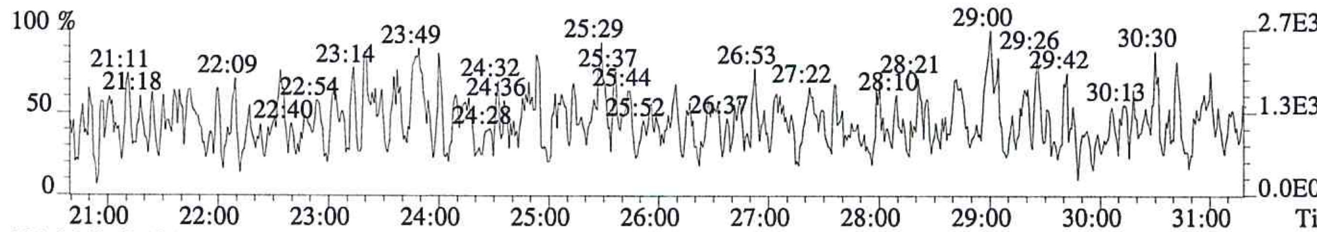


File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005

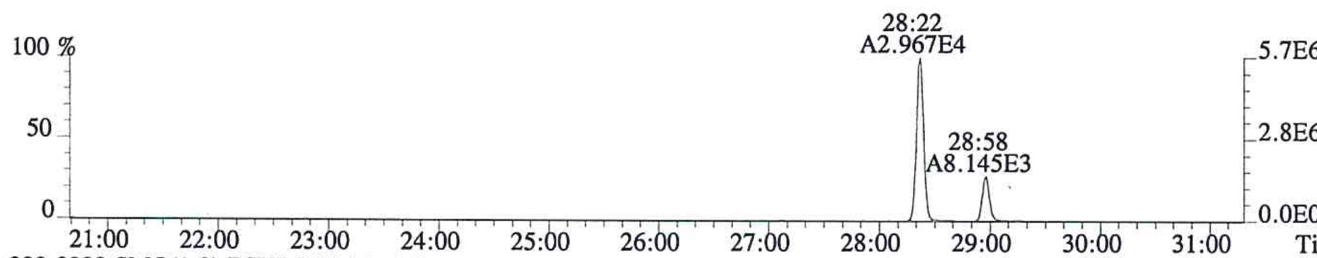
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



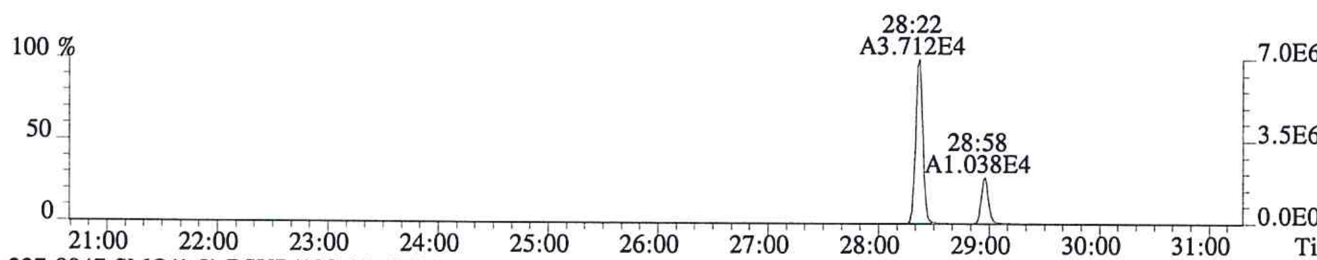
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



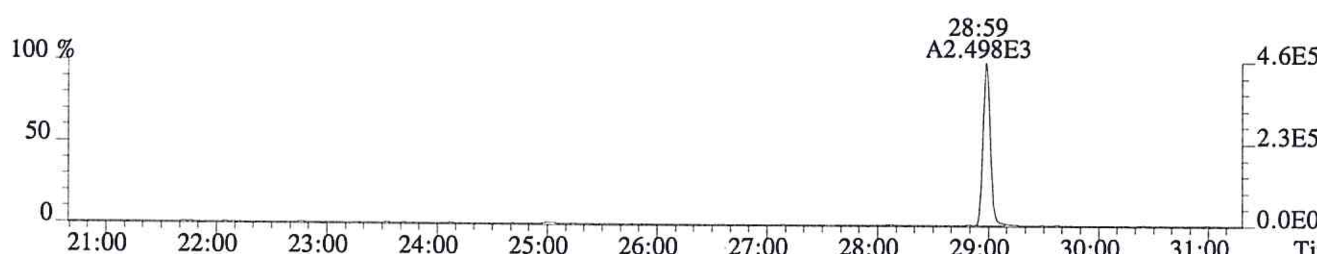
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7412.0,1.00%,F,T)



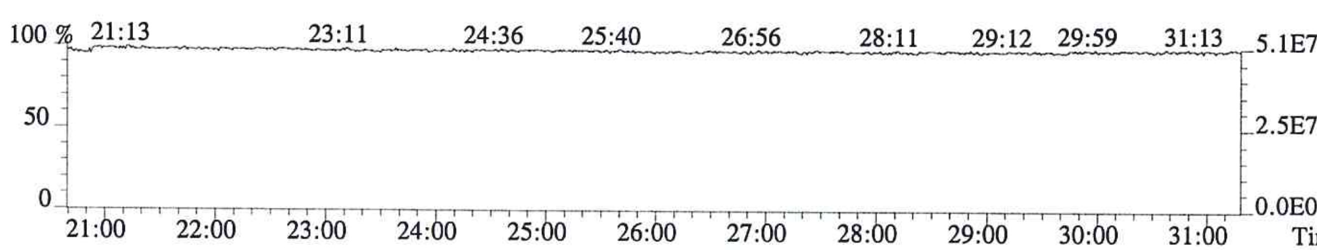
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3816.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)

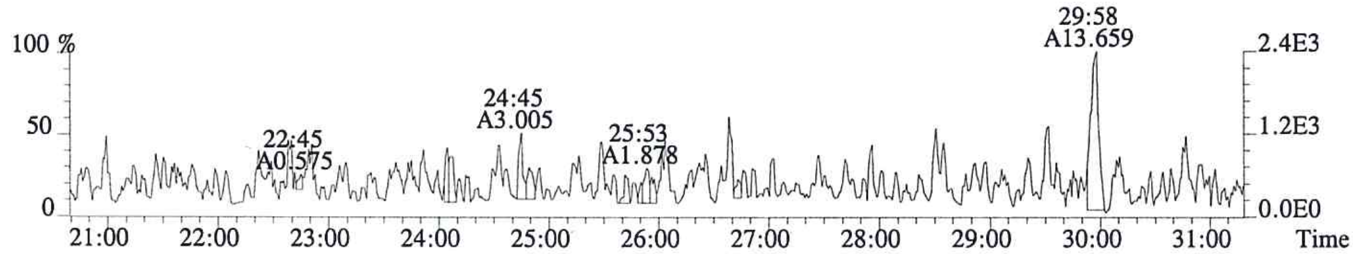


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

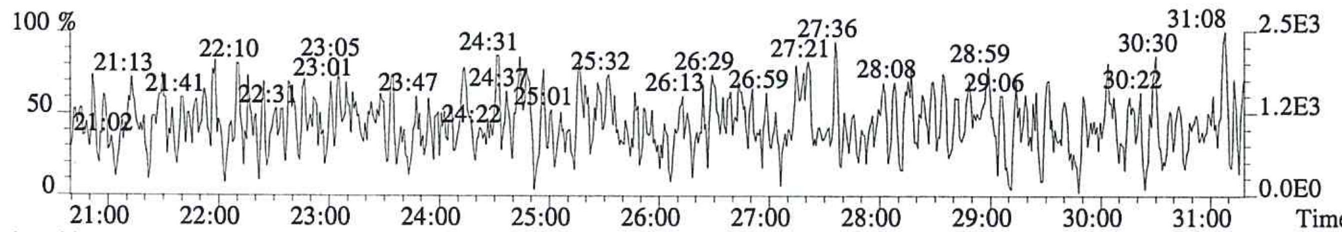


File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005

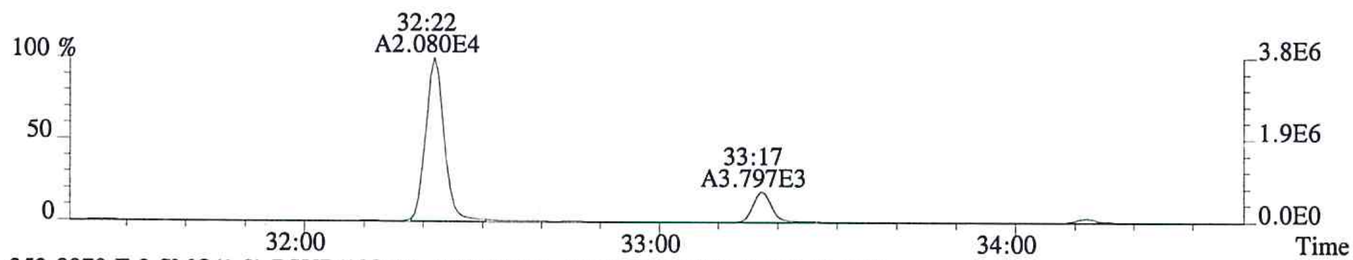
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



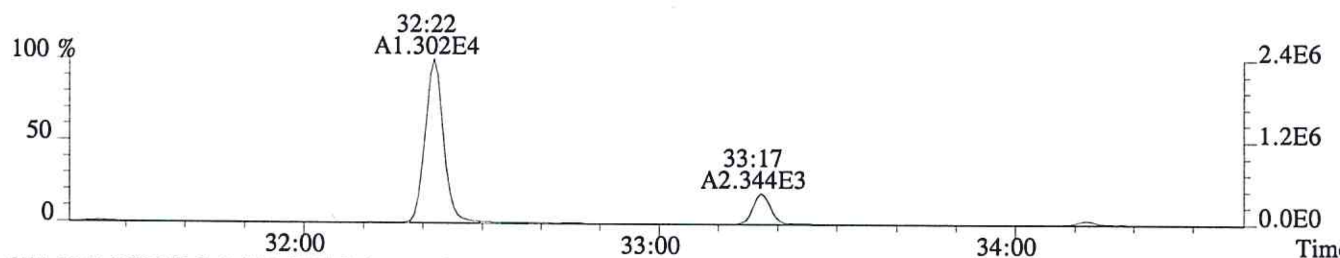
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



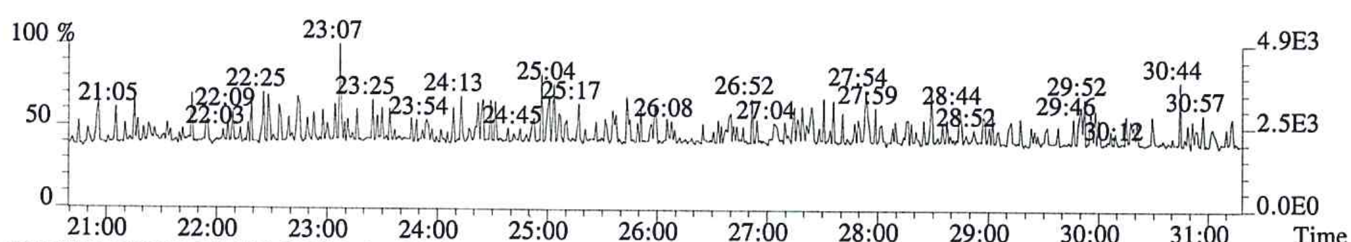
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)



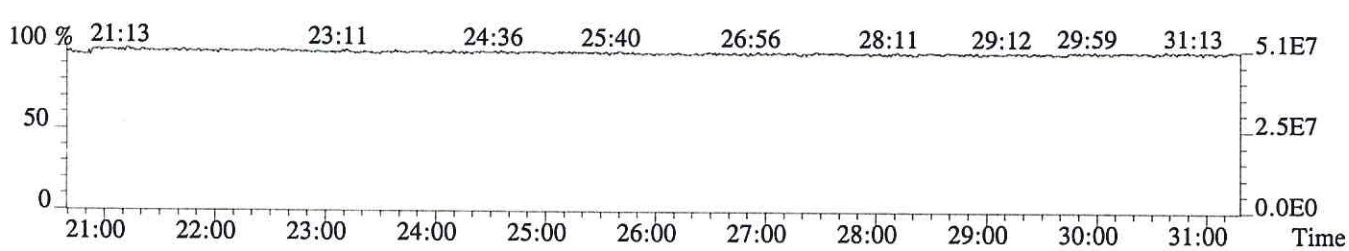
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



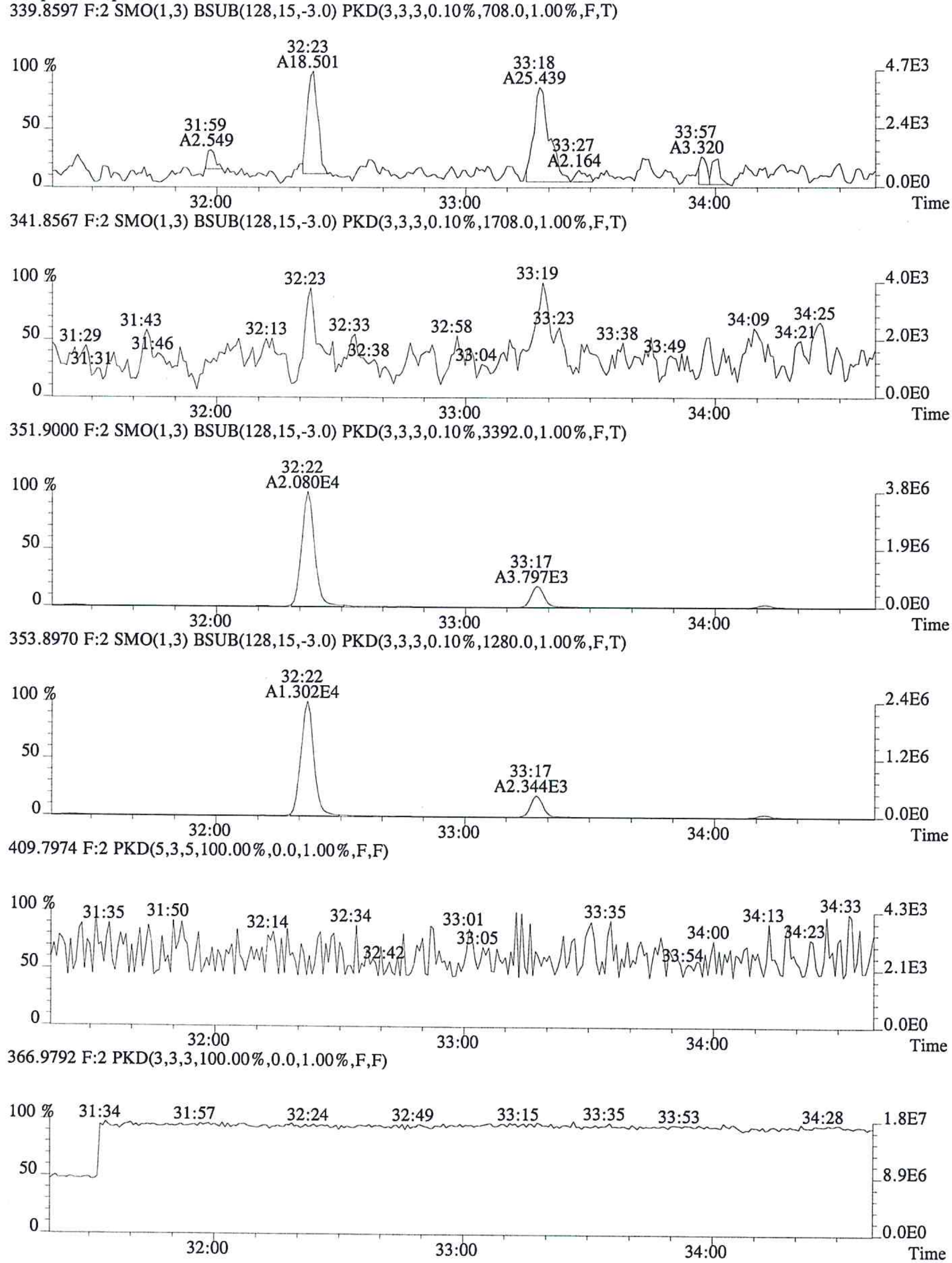
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

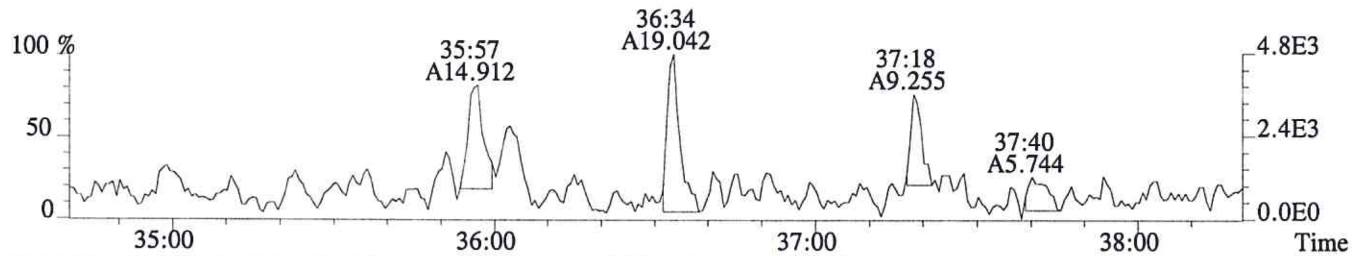


File:P603999 #1-298 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005

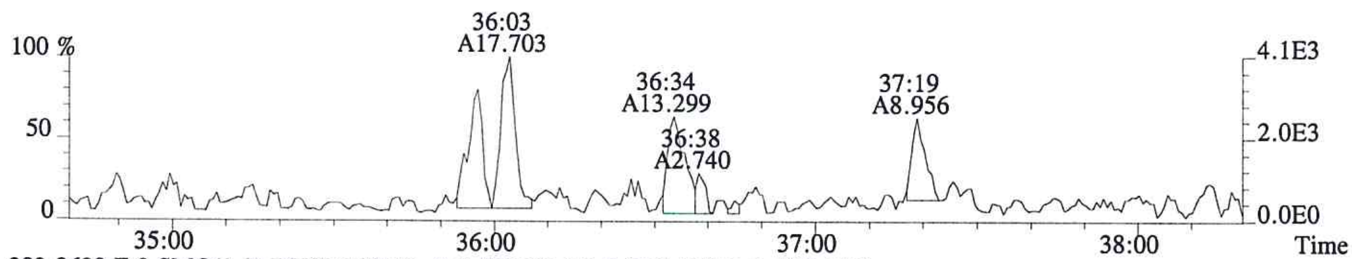


File:P603999 #1-329 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005

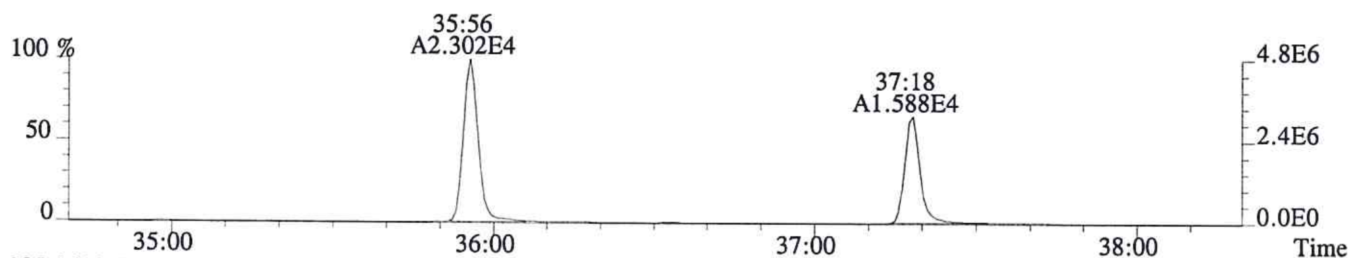
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



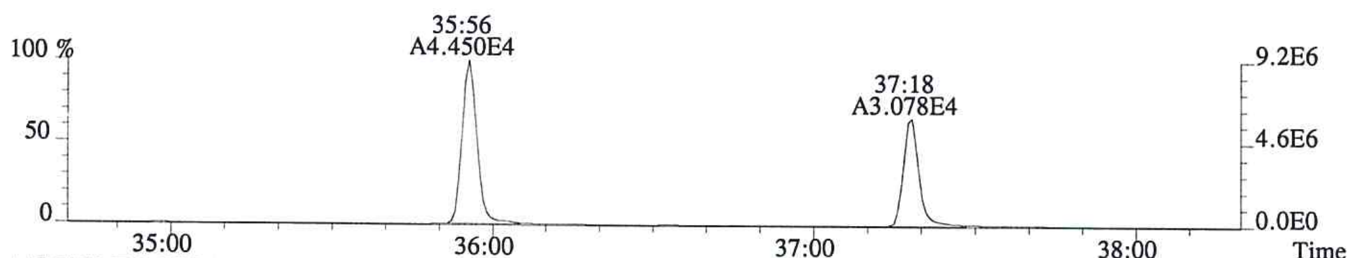
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



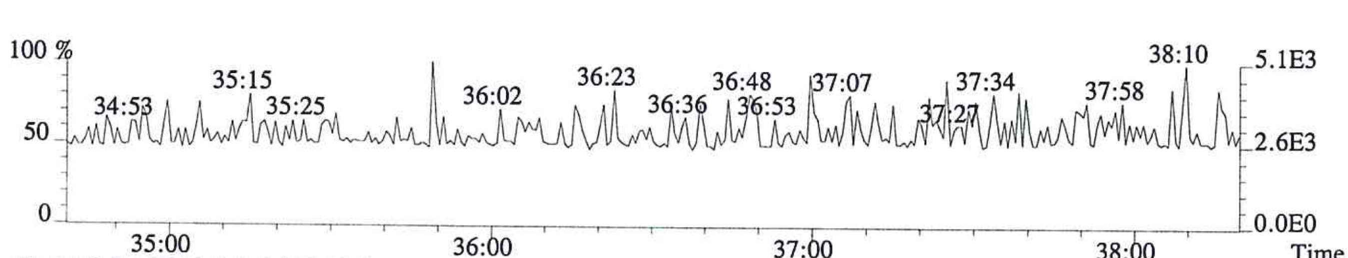
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



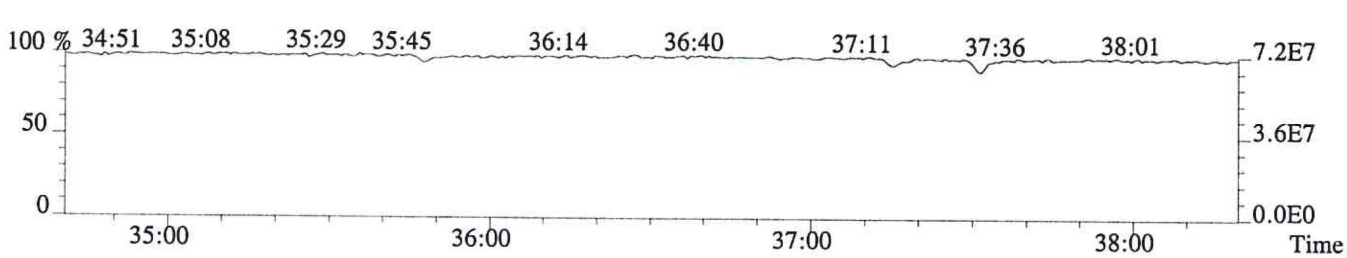
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



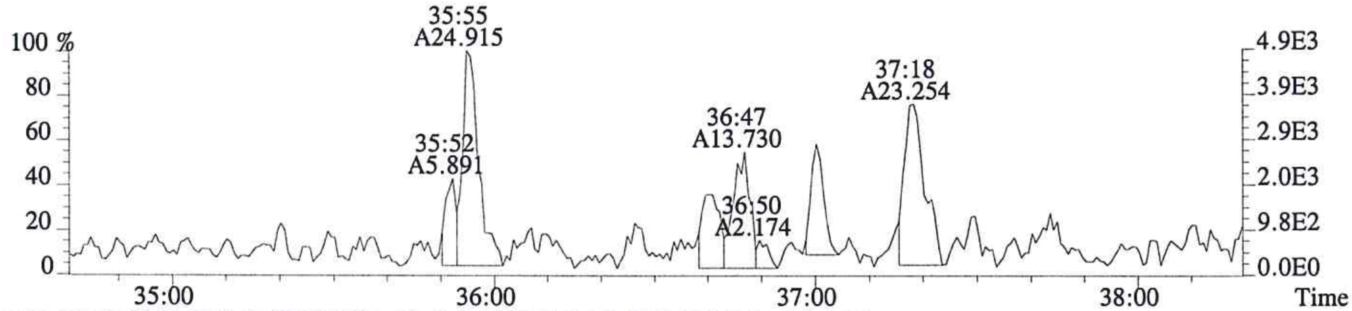
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



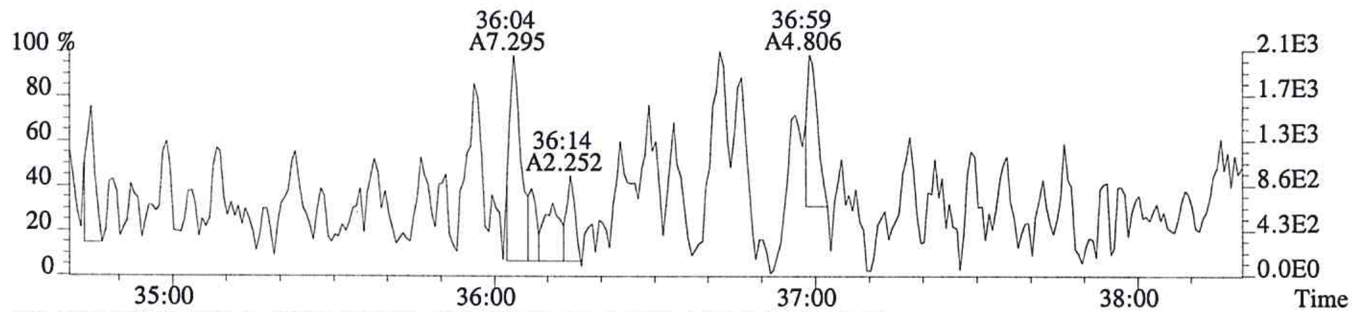
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



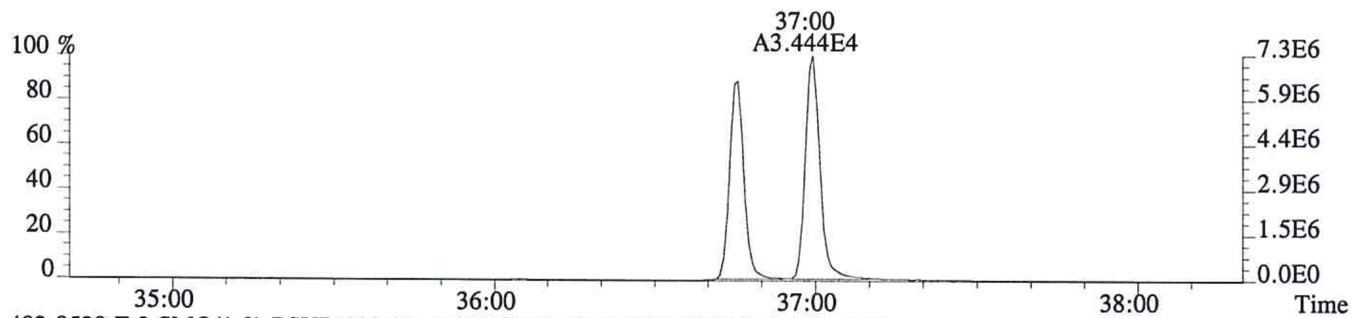
File:P603999 #1-329 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



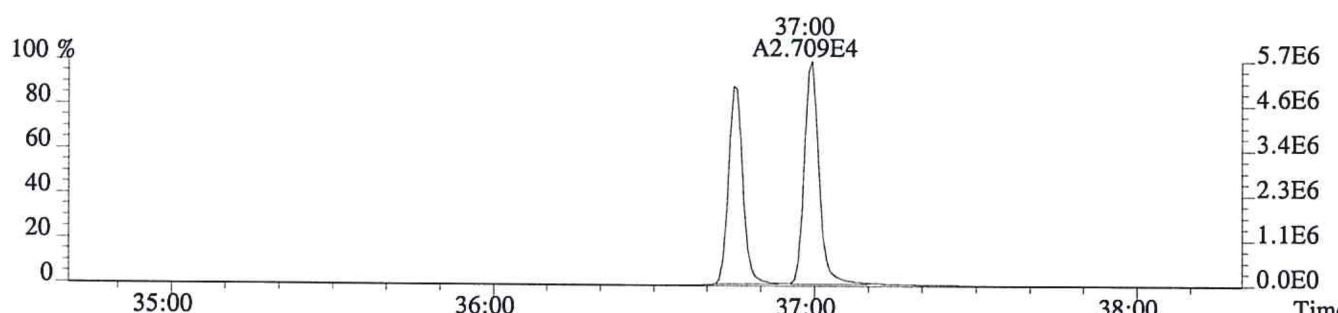
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



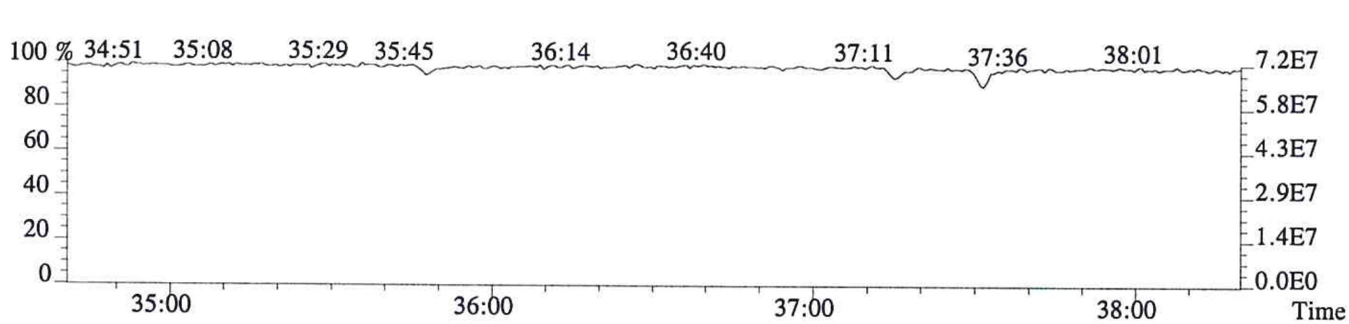
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW12

Run #15 Filename P604000 Samp: 1 Inj: 1 Acquired: 26-JUN-16 01:31:21
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.464e+04	1.850e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.381e+04	1.485e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.134e+03	2.647e+03	1.56	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.612e+04	3.101e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	4.304e+03	5.371e+03	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	9.914e+03	1.245e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.999e+04	3.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.547e+04	2.829e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	2.865e+03				no	0.945

EDL (1.31e+03 + 9.02e+02) x 1000 pg 1 x 2.5
TCDD = -- = 1.27 ng/kg
(~~9.914e+0~~3 + ~~1.245e+04~~) x 1.0 g x 100 / x 1.048
(1.85e+06 + 2.31e+06)
LLL 07/06/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW12

Run #15 Filename P604000 Samp: 1 Inj: 1 Acquired: 26-JUN-16 01:31:21
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.28e+02	*	*	2.97e+03	*
3	2,3,4,7,8-PeCDF	*	5.40e+02	*	*	1.65e+03	*
11	2,3,7,8-TCDD	*	1.31e+03	*	*	9.08e+02	*
18	13C-2,3,7,8-TCDF	2.61e+06	5.25e+03	5.0e+02	3.31e+06	2.36e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	4.44e+06	2.59e+03	1.7e+03	2.73e+06	2.64e+03	1.0e+03
20	13C-2,3,4,7,8-PeCDF	8.03e+05	2.59e+03	3.1e+02	5.10e+05	2.64e+03	1.9e+02
24	13C-1,2,3,7,8,9-HxCDF	3.16e+06	5.28e+02	6.0e+03	6.11e+06	1.19e+03	5.1e+03
26	13C-1,2,3,4-TCDF	7.10e+05	5.25e+03	1.4e+02	8.94e+05	2.36e+03	3.8e+02
27	13C-2,3,7,8-TCDD	1.85e+06	5.22e+03	3.5e+02	2.31e+06	3.69e+03	6.3e+02
33	13C-1,2,3,4-TCDD	5.69e+06	5.22e+03	1.1e+03	7.14e+06	3.69e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.13e+06	2.98e+03	2.4e+03	5.68e+06	1.38e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	5.47e+05	1.45e+03	3.8e+02			

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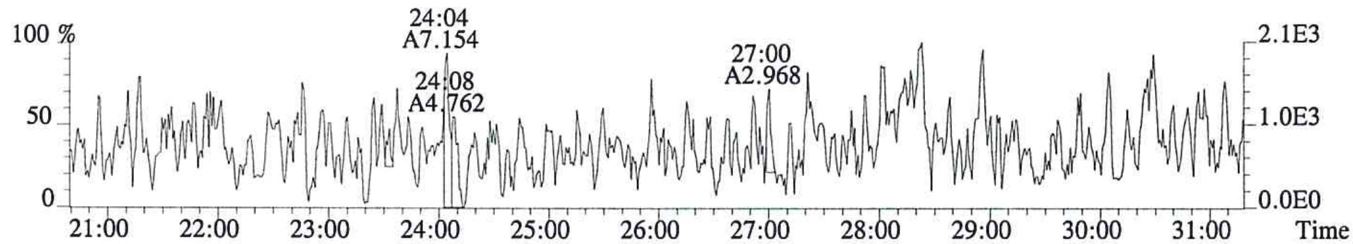
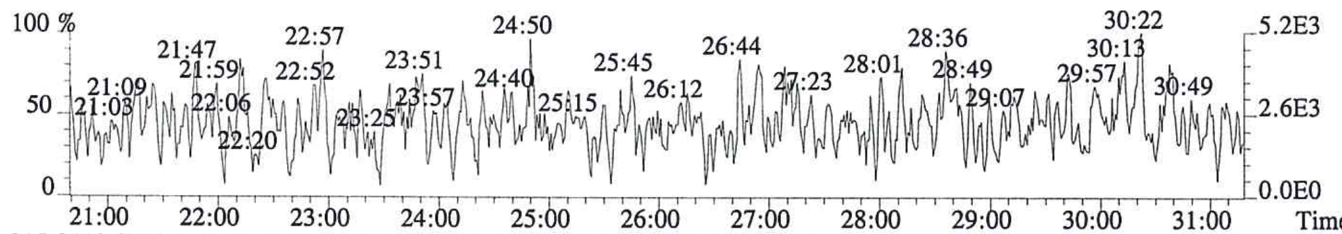
www.alsglobal.com

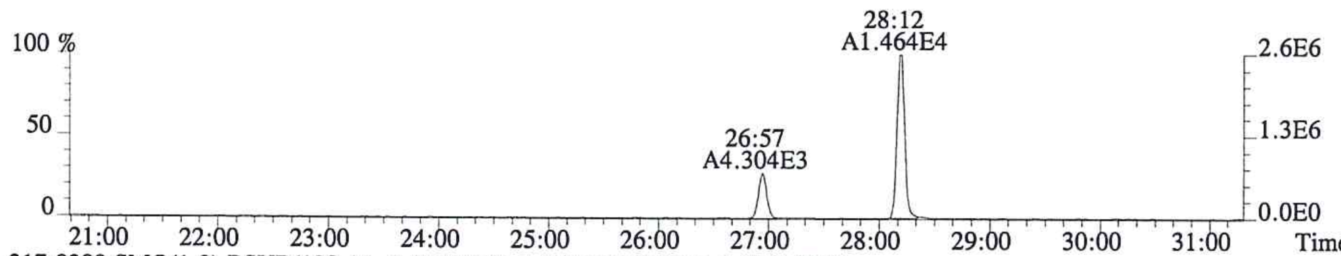
File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



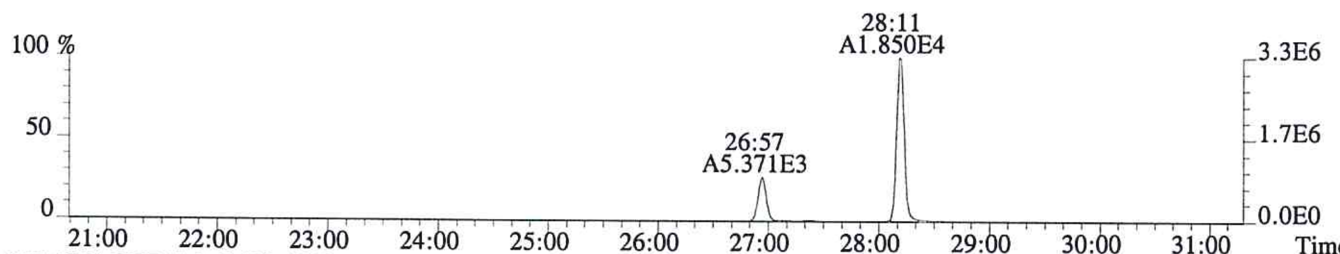
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



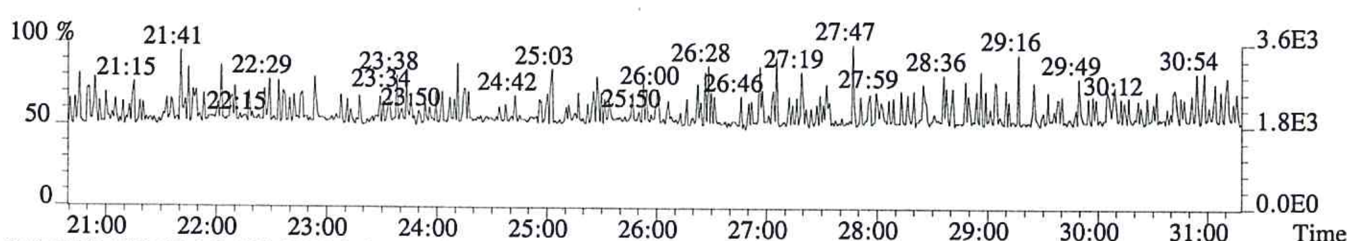
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5252.0,1.00%,F,T)



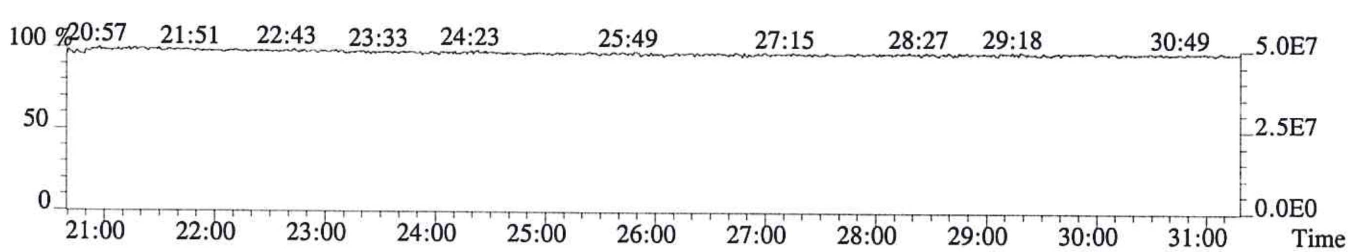
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



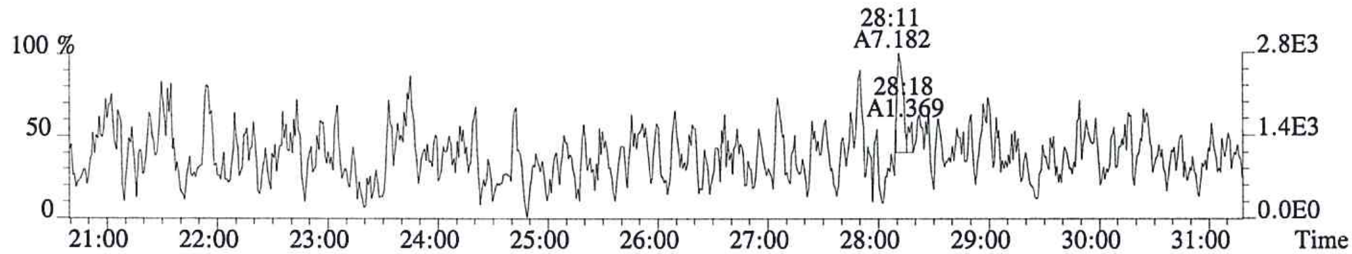
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



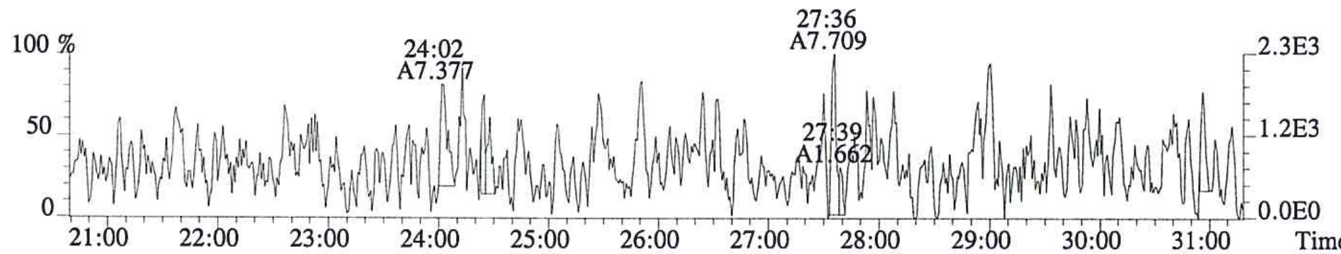
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



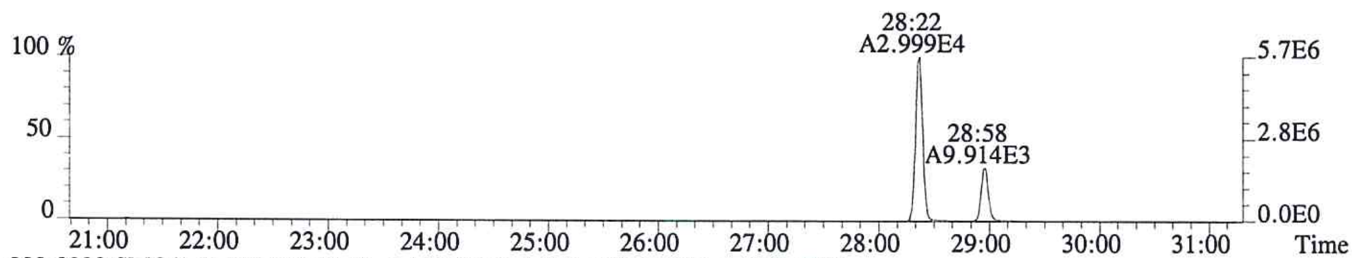
File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



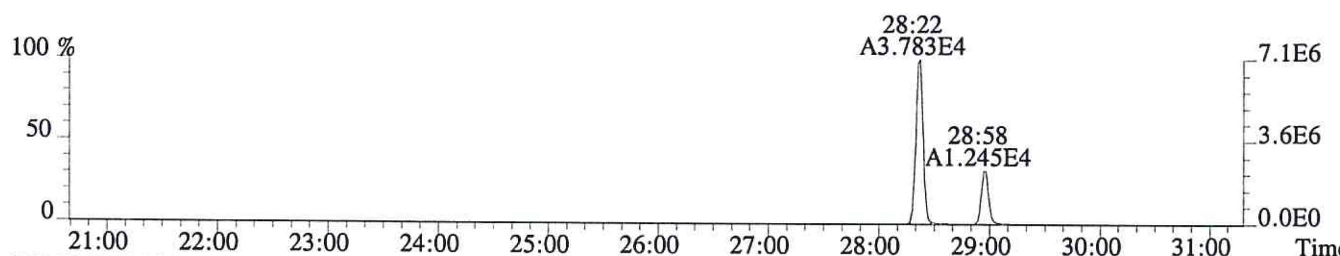
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



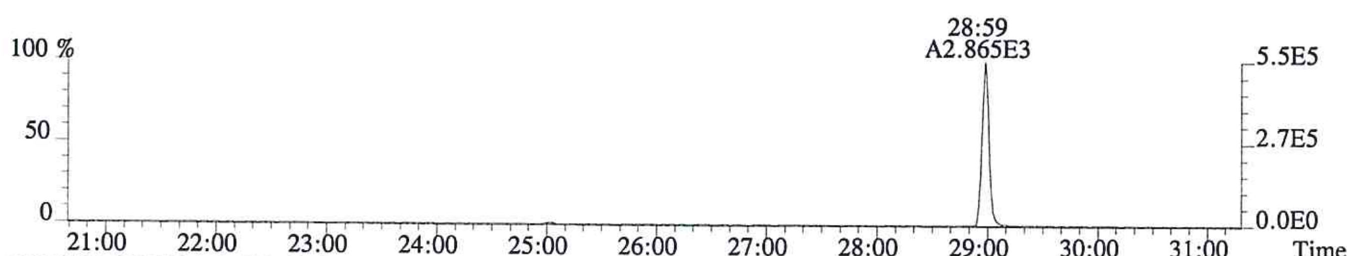
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5216.0,1.00%,F,T)



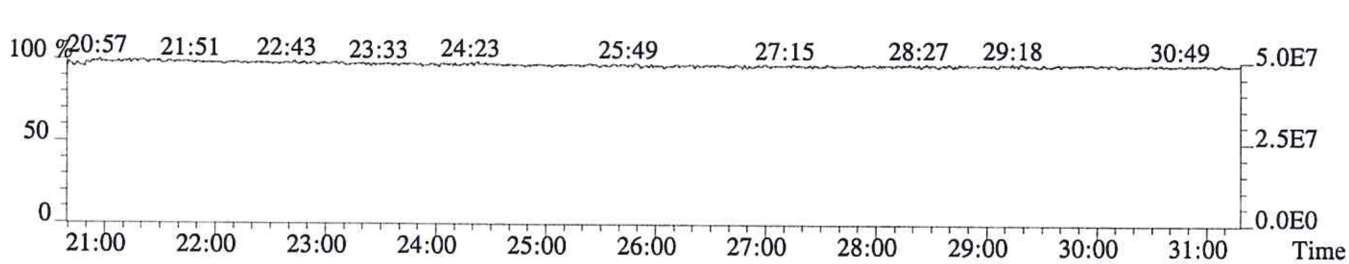
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3688.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)

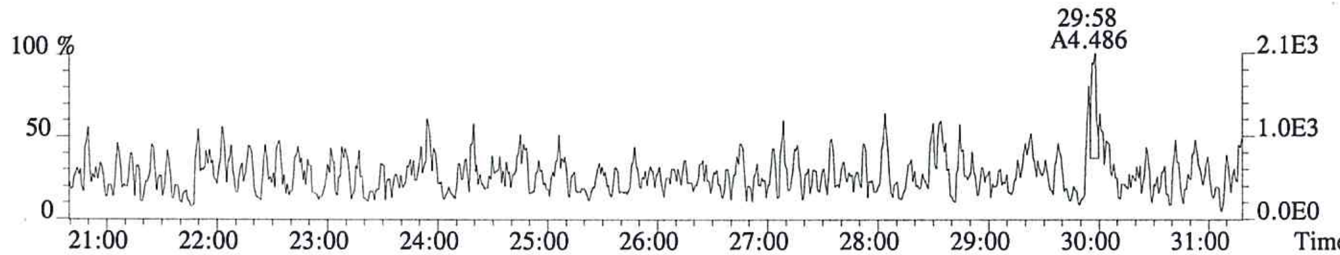


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

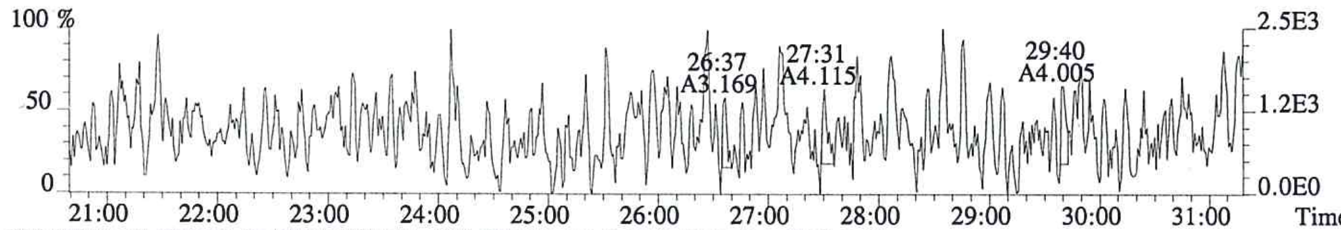


File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006

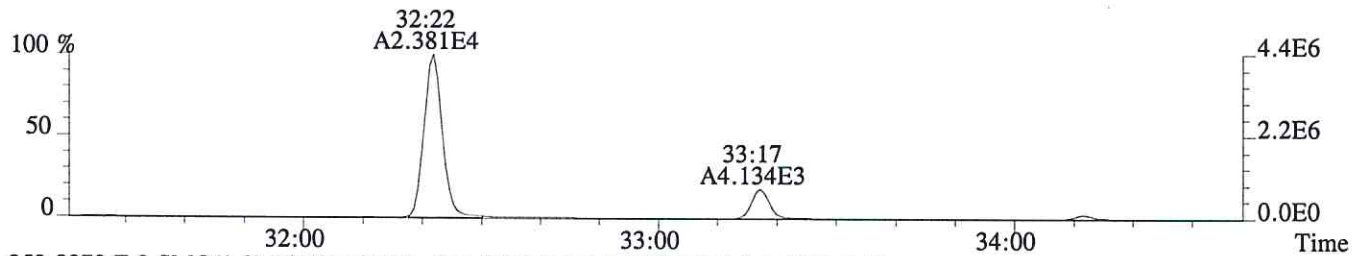
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



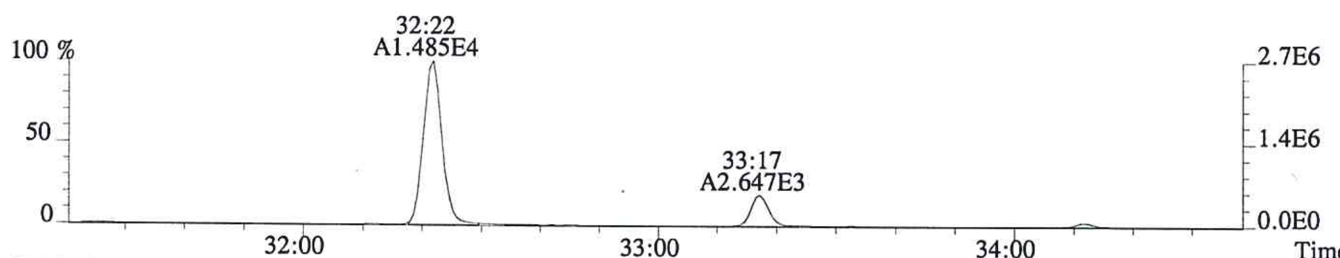
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



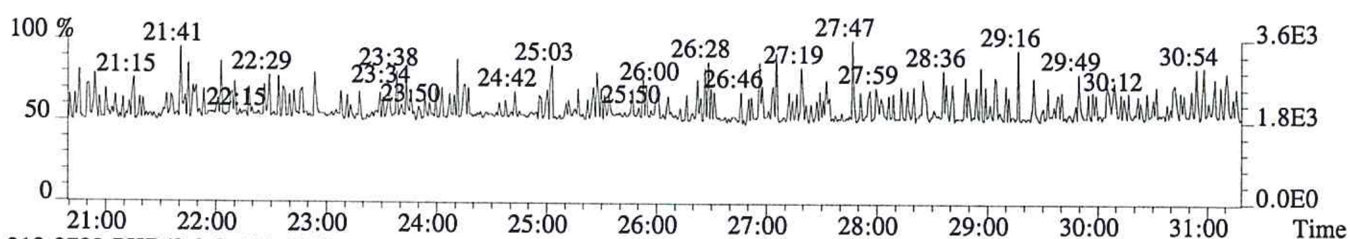
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



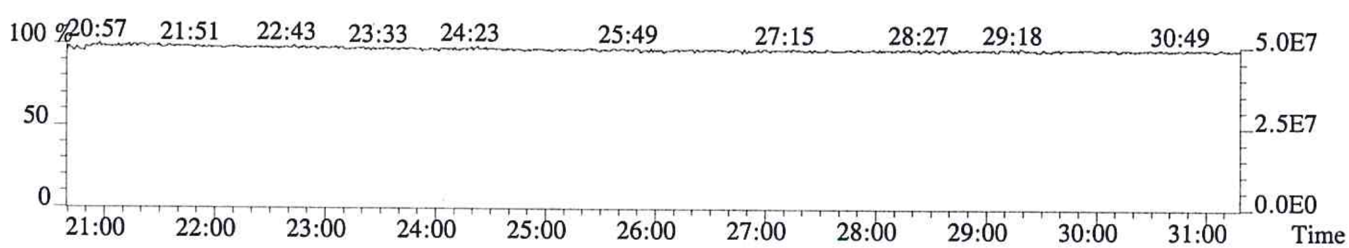
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

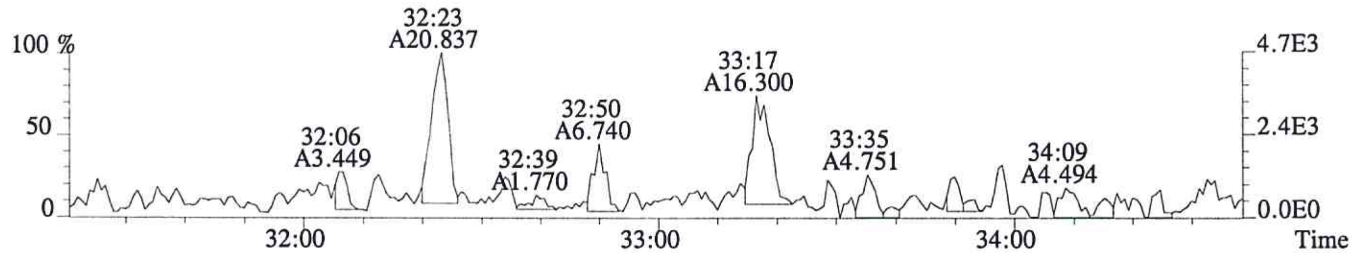


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

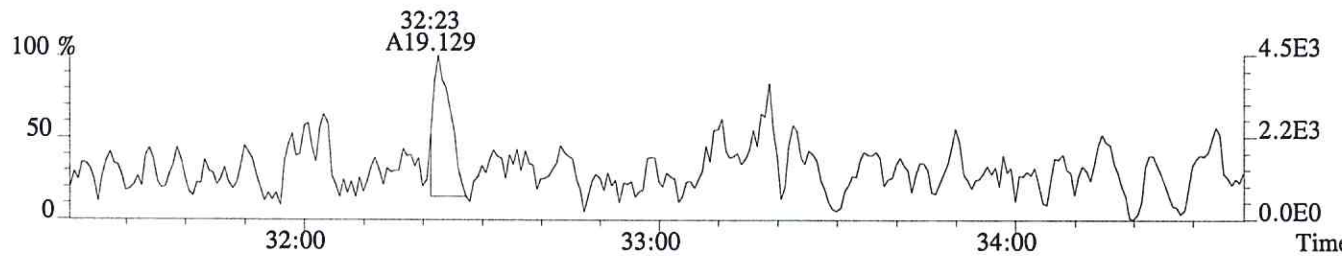


File:P604000 #1-298 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006

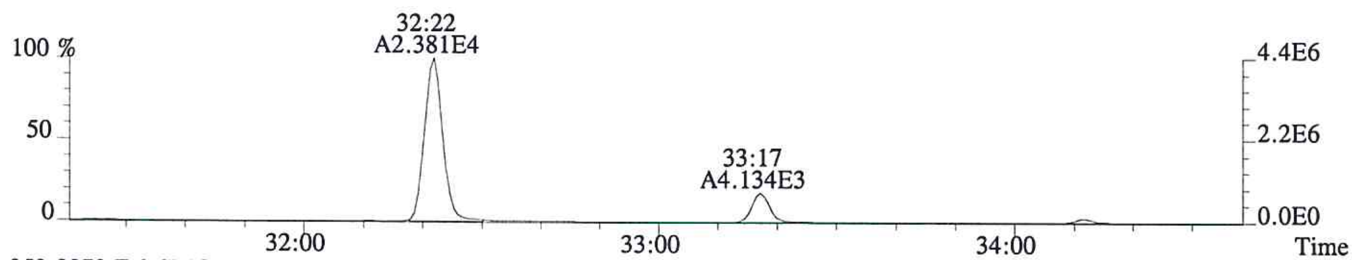
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



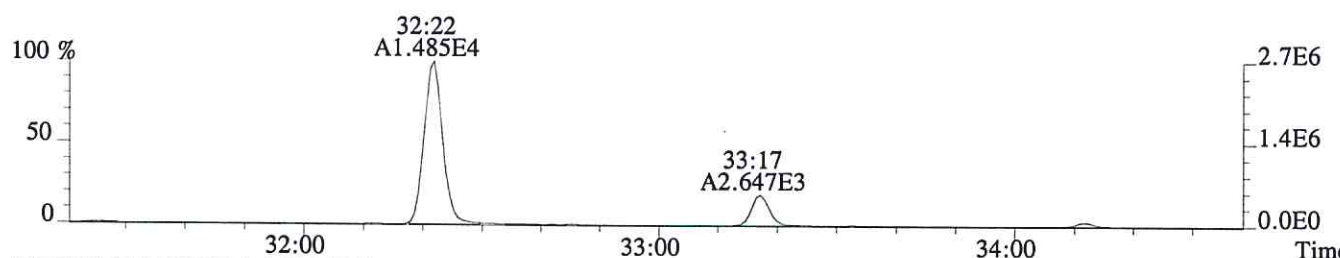
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



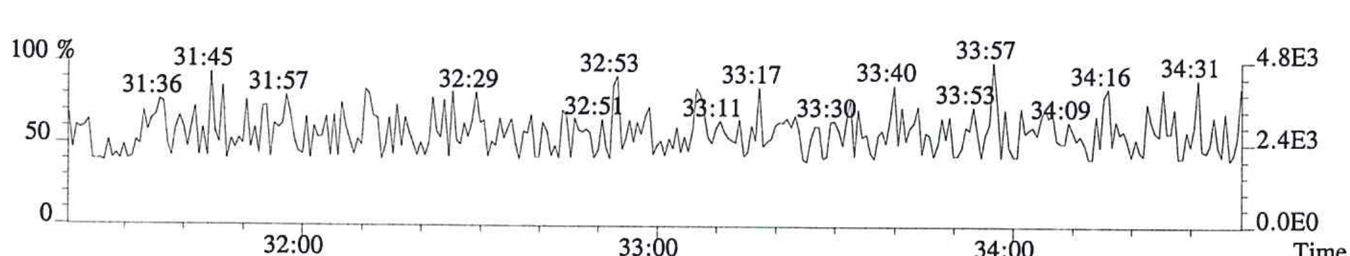
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



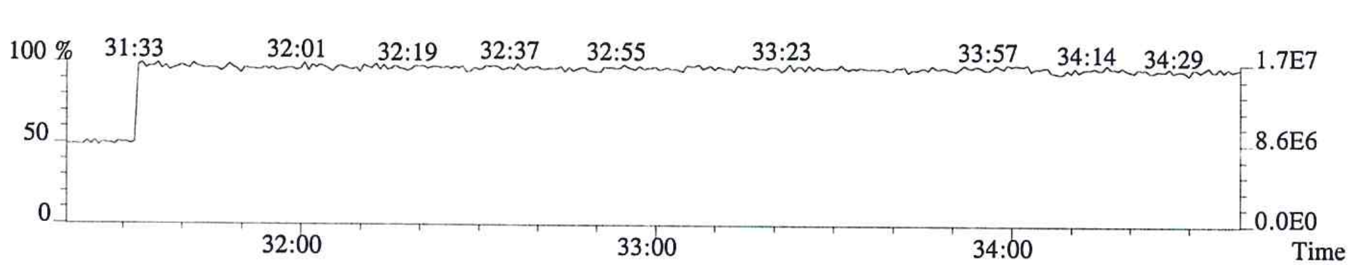
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



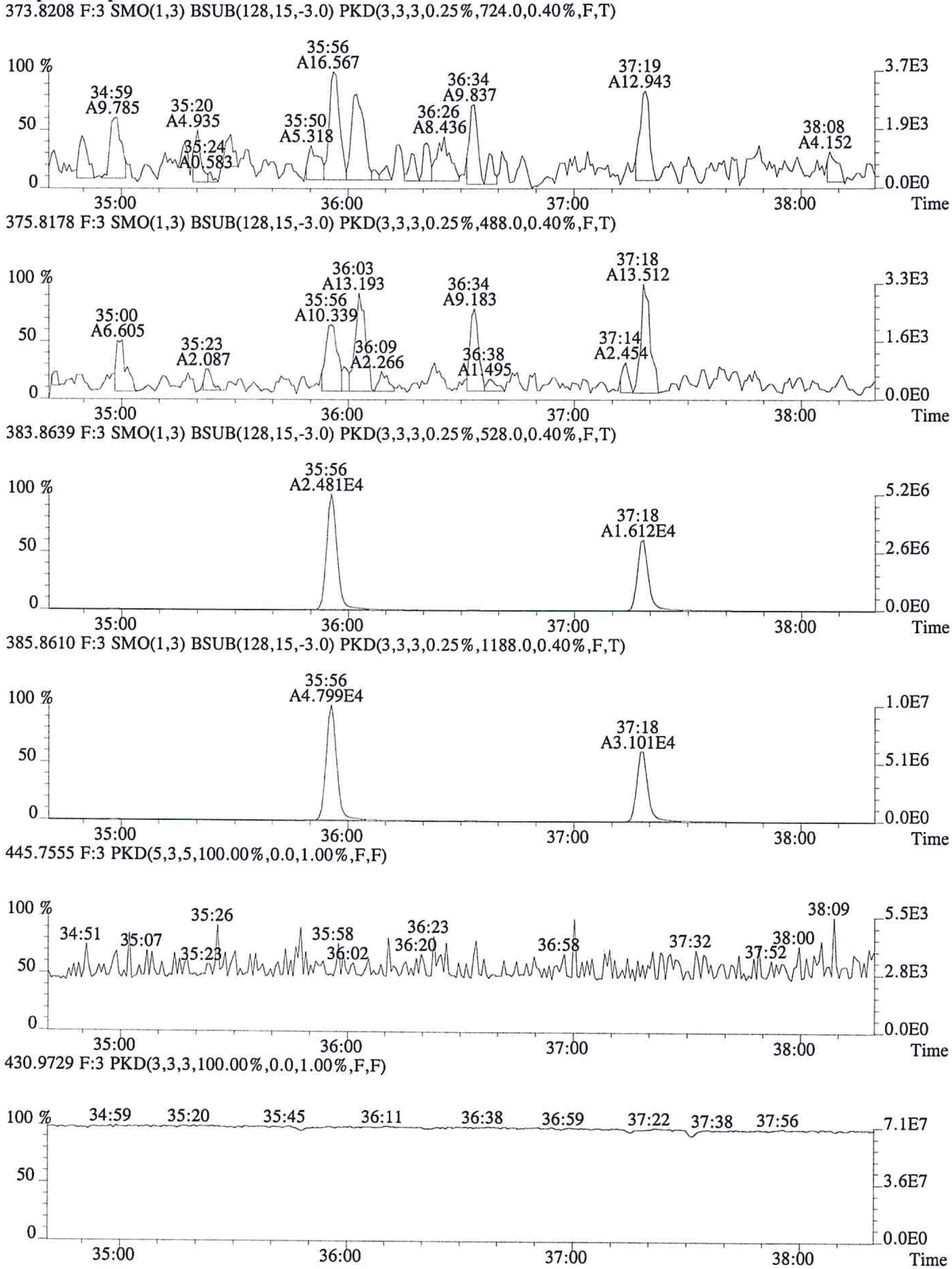
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

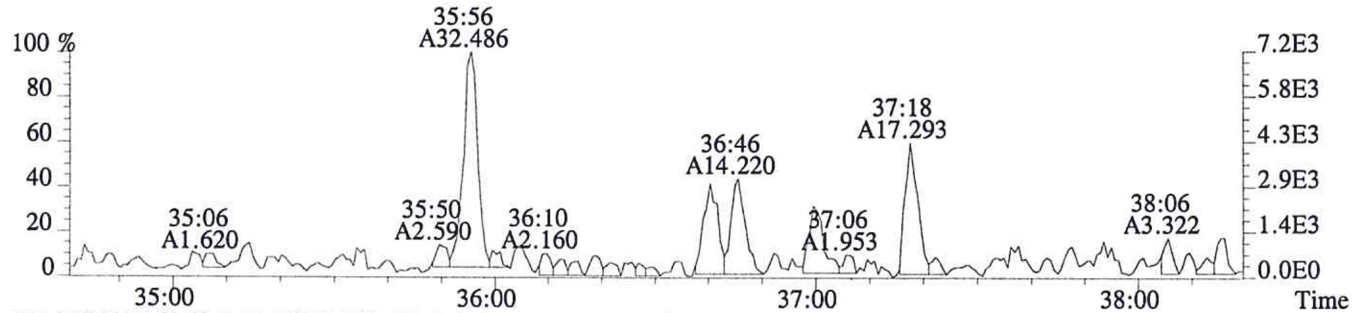


File:P604000 #1-329 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006

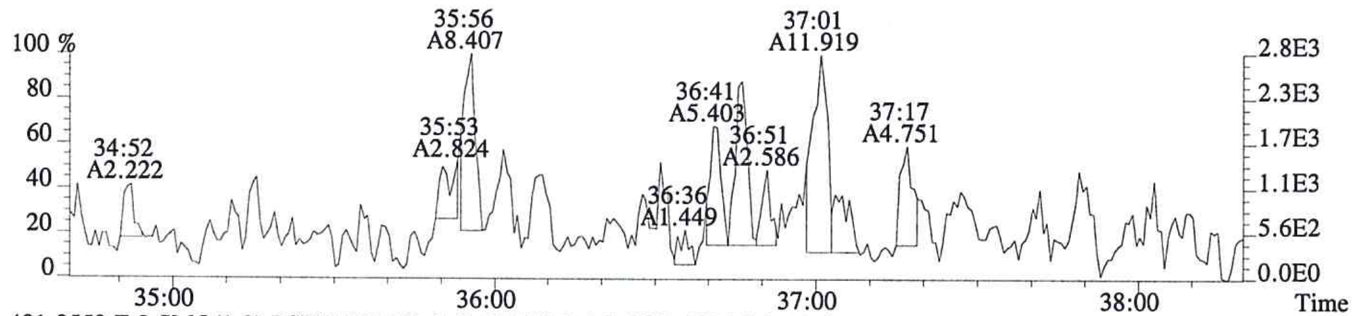


File:P604000 #1-329 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006

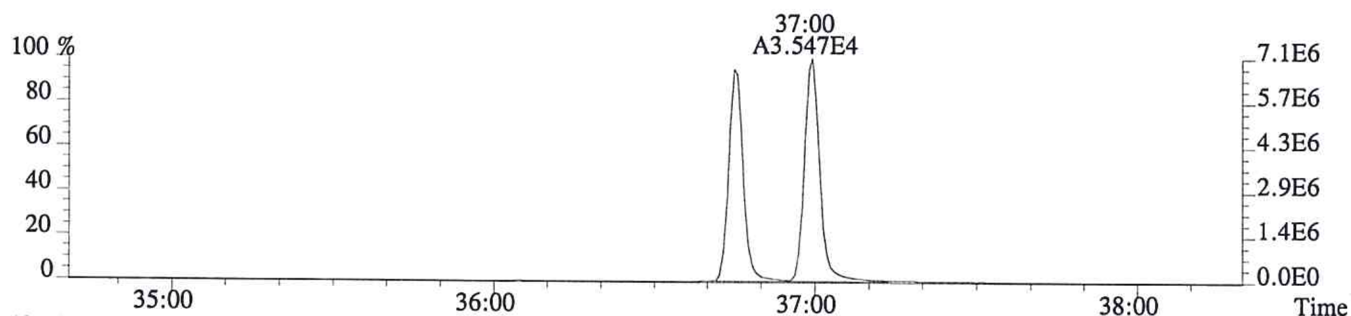
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



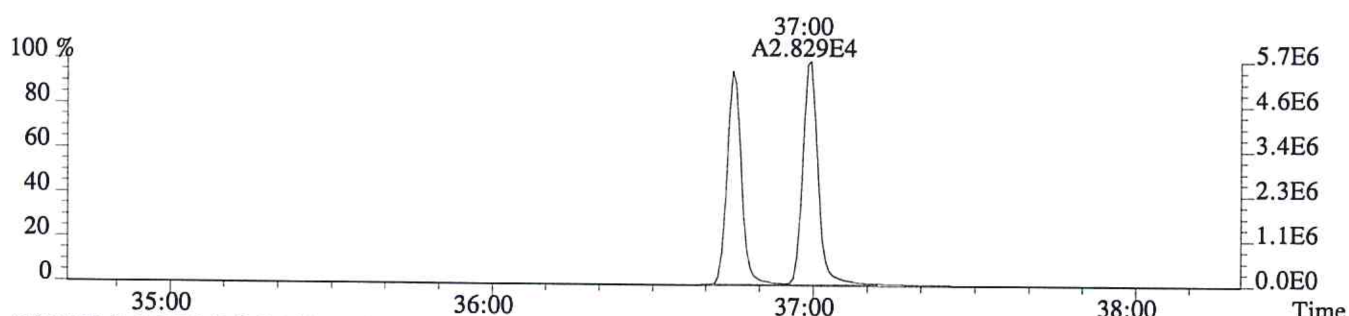
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



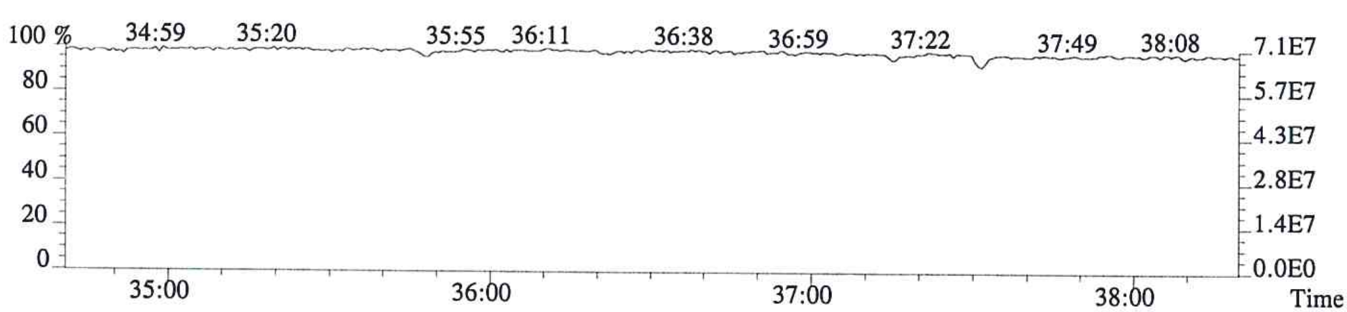
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW13

Run #16 Filename P604001 Samp: 1 Inj: 1 Acquired: 26-JUN-16 02:20:22
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	9.363e+02	1.148e+03	0.82	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.825e+03	1.174e+03	1.55	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	3.054e+02	2.112e+02	1.45	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.405e+03	2.709e+03	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	3.168e+02	4.360e+02	0.73	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	5.895e+02	7.688e+02	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	2.523e+03	3.192e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.660e+03	2.846e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.949e+02				no	0.945

EDL
(1.12e+03 + 1.03e+03) x 1000 pg 1 x2.5
TCDD = -- = 21.4 ng/kg
(~~5.895e+02~~ + ~~7.688e+02~~) x 1.0 g x 100/ x 1.048
(1.04e+05 + 1.35e+05)
UM 07/06/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW13

Run #16 Filename P604001 Samp: 1 Inj: 1 Acquired: 26-JUN-16 02:20:22
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.08e+02	*	*	2.17e+03	*
3	2,3,4,7,8-PeCDF	*	6.20e+02	*	*	1.73e+03	*
11	2,3,7,8-TCDD	*	1.12e+03	*	*	1.03e+03	*
18	13C-2,3,7,8-TCDF	1.44e+05	3.37e+03	4.3e+01	1.83e+05	2.86e+03	6.4e+01
19	13C-1,2,3,7,8-PeCDF	2.98e+05	7.32e+02	4.1e+02	1.92e+05	1.19e+03	1.6e+02
20	13C-2,3,4,7,8-PeCDF	5.63e+04	7.32e+02	7.7e+01	3.56e+04	1.19e+03	3.0e+01
24	13C-1,2,3,7,8,9-HxCDF	2.61e+05	6.12e+02	4.3e+02	4.89e+05	1.65e+03	3.0e+02
26	13C-1,2,3,4-TCDF	4.89e+04	3.37e+03	1.5e+01	6.38e+04	2.86e+03	2.2e+01
27	13C-2,3,7,8-TCDD	1.04e+05	6.63e+03	1.6e+01	1.35e+05	4.19e+03	3.2e+01
33	13C-1,2,3,4-TCDD	4.45e+05	6.63e+03	6.7e+01	5.77e+05	4.19e+03	1.4e+02
34	13C-1,2,3,7,8,9-HxCDD	7.04e+05	1.52e+03	4.6e+02	5.43e+05	1.11e+03	4.9e+02
35	37Cl-2,3,7,8-TCDD	3.27e+04	1.64e+03	2.0e+01			

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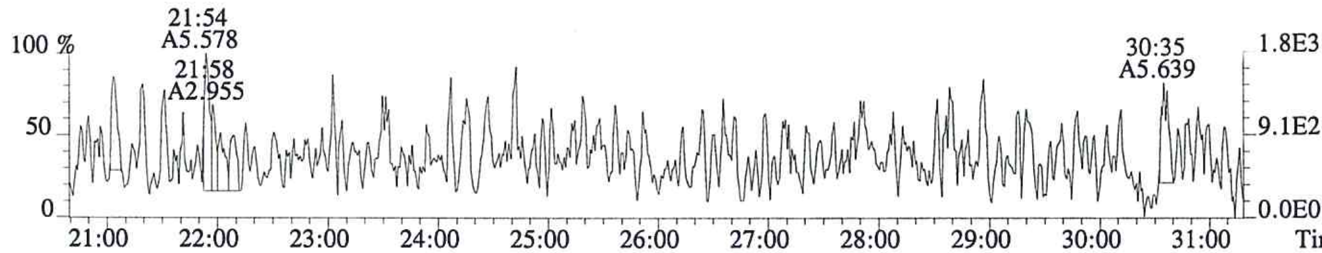
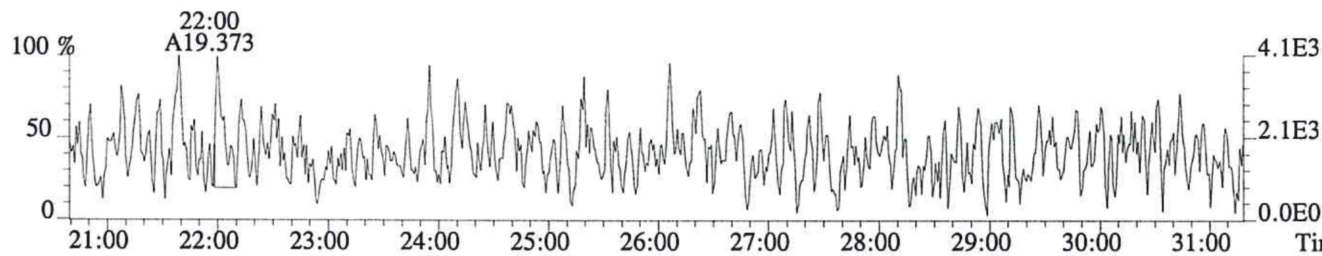
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007

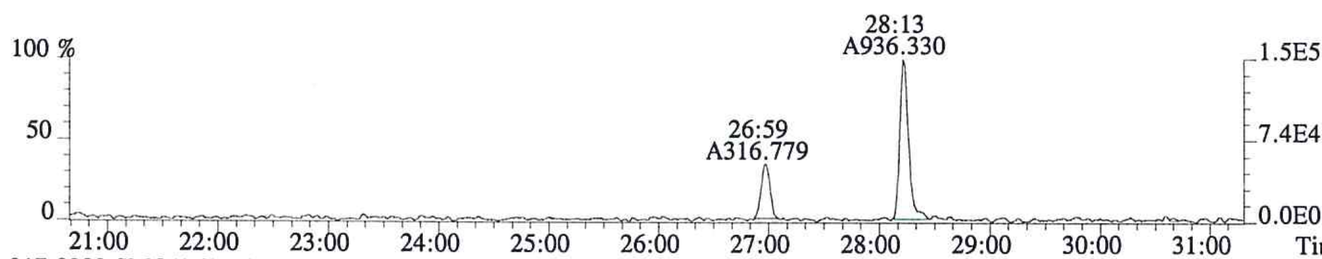
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



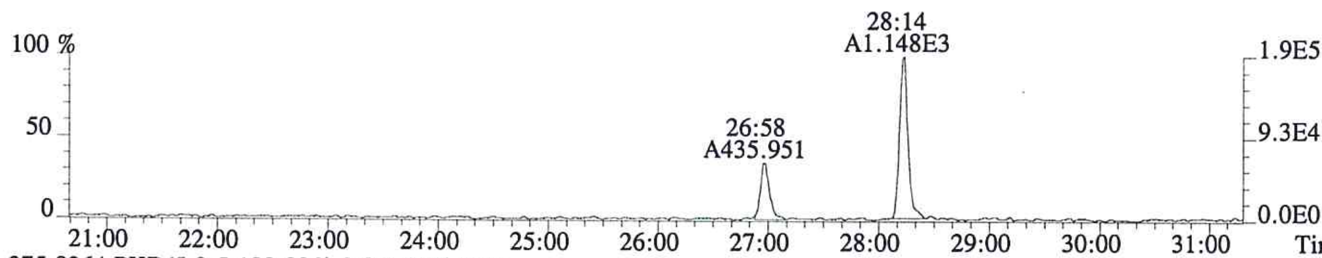
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



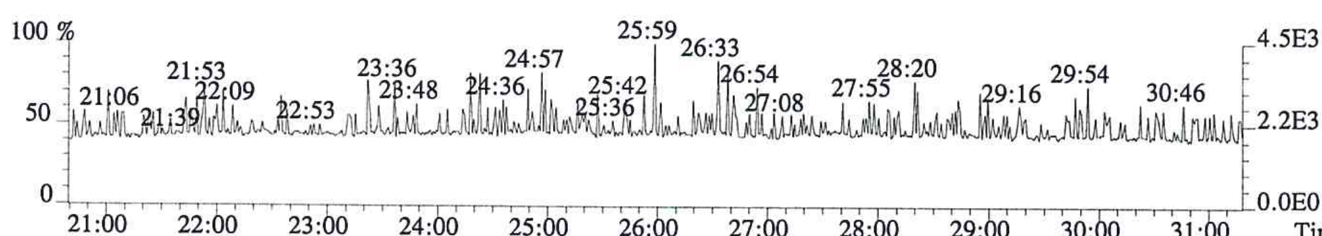
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



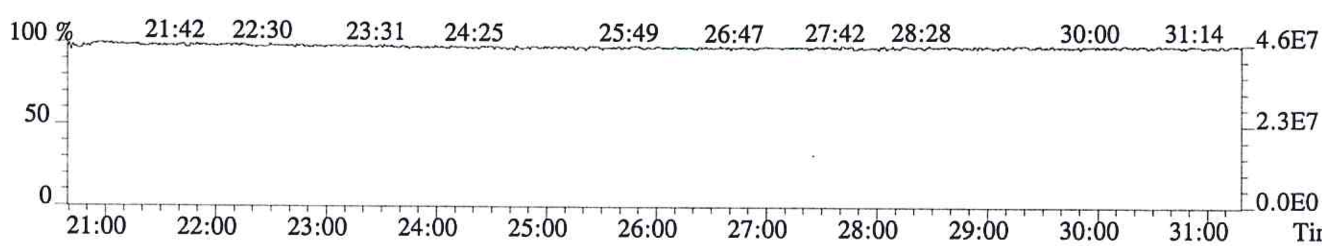
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



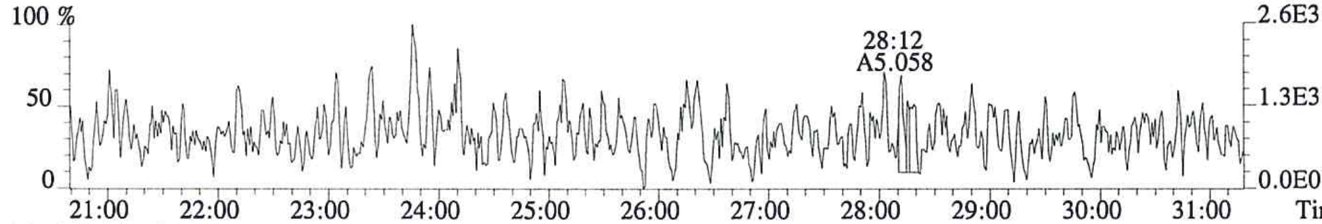
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



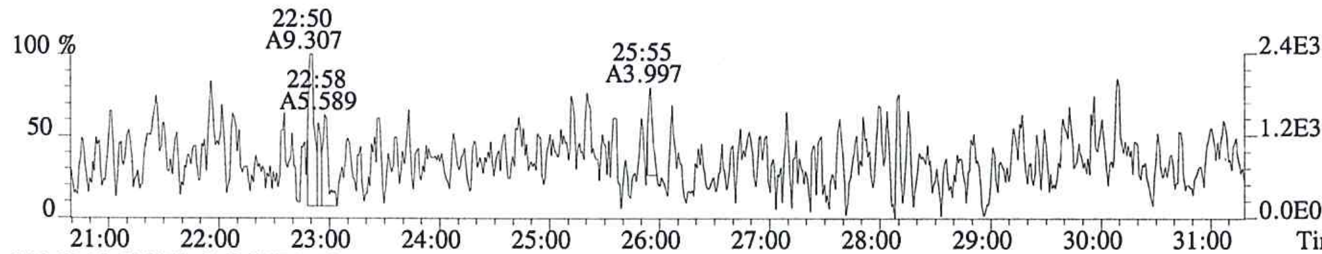
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



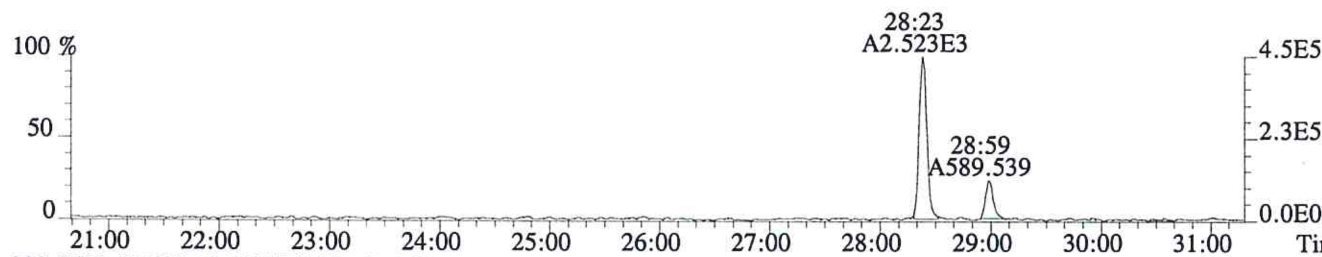
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



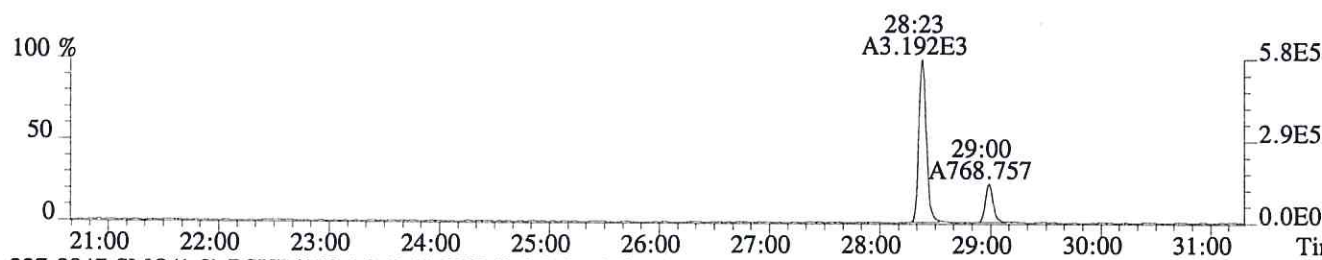
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



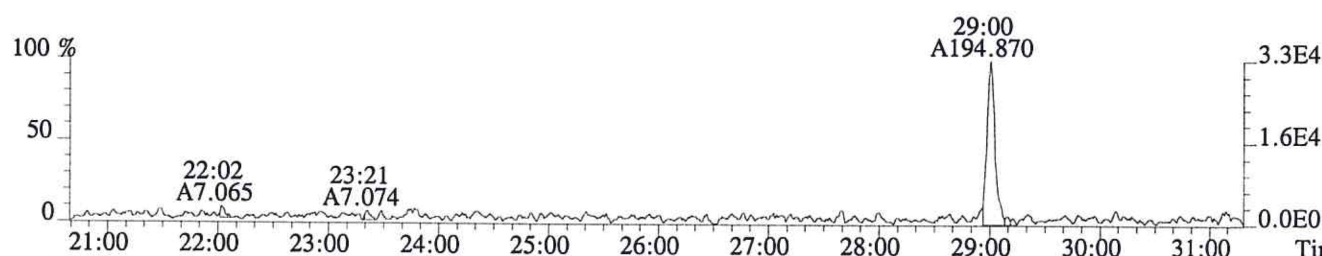
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6632.0,1.00%,F,T)



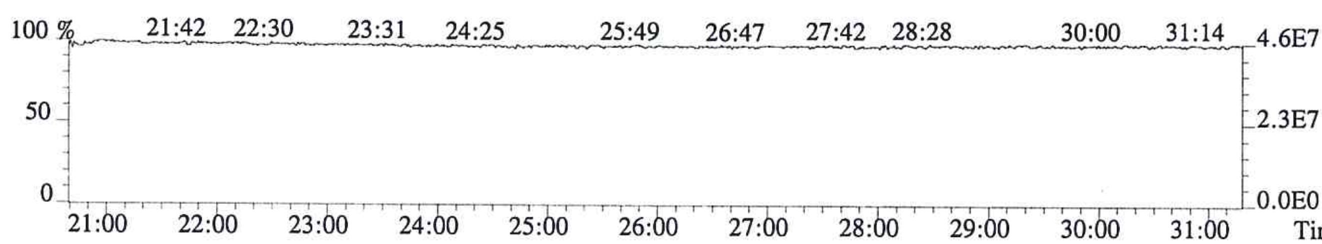
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4188.0,1.00%,F,T)



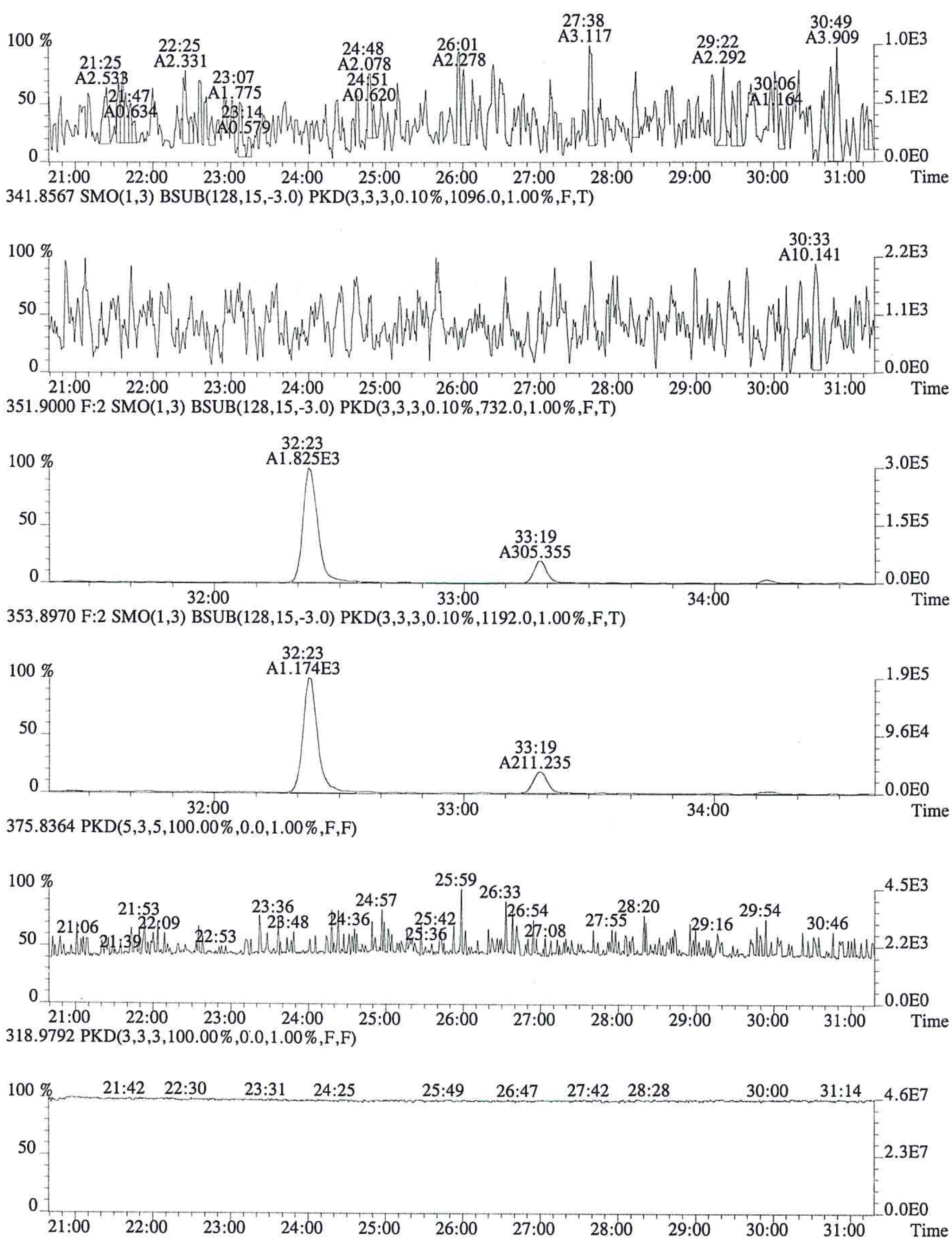
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



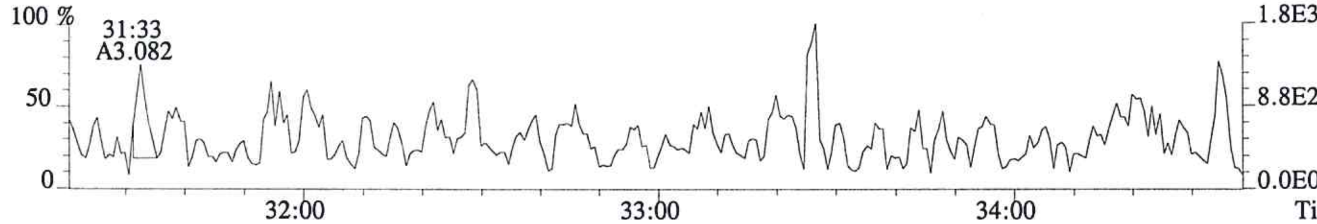
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



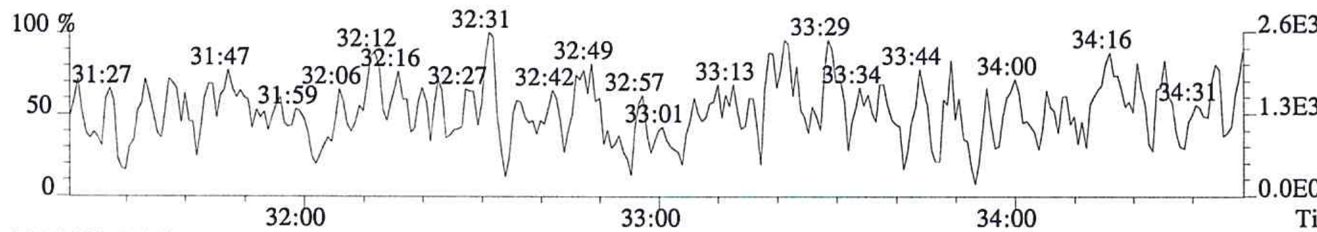
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007



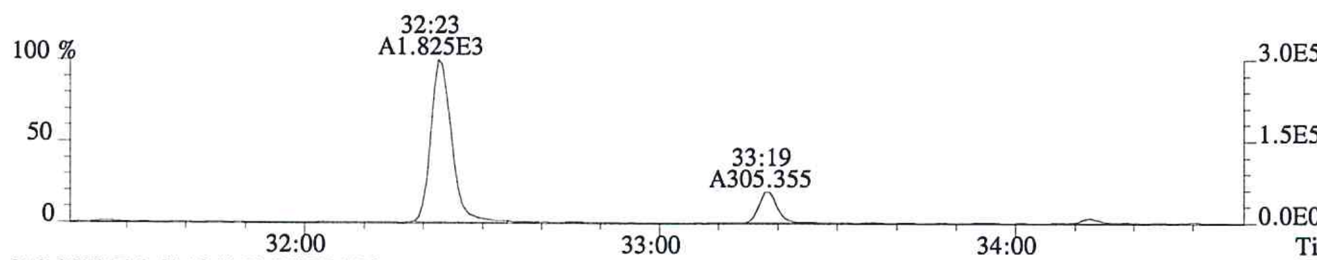
File:P604001 #1-298 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



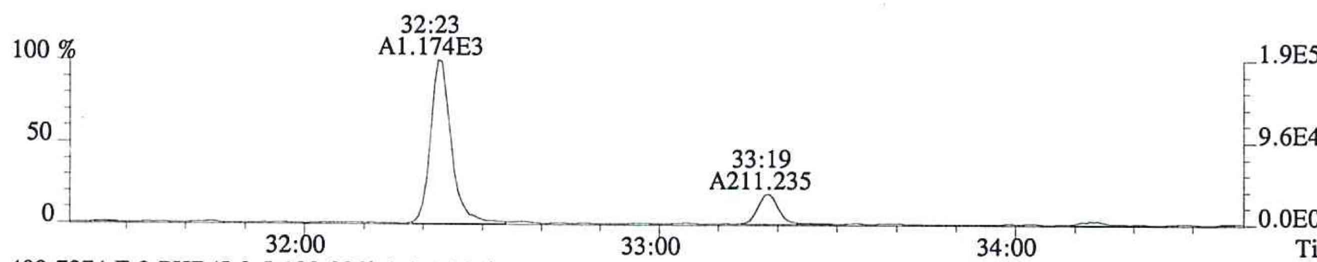
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1732.0,1.00%,F,T)



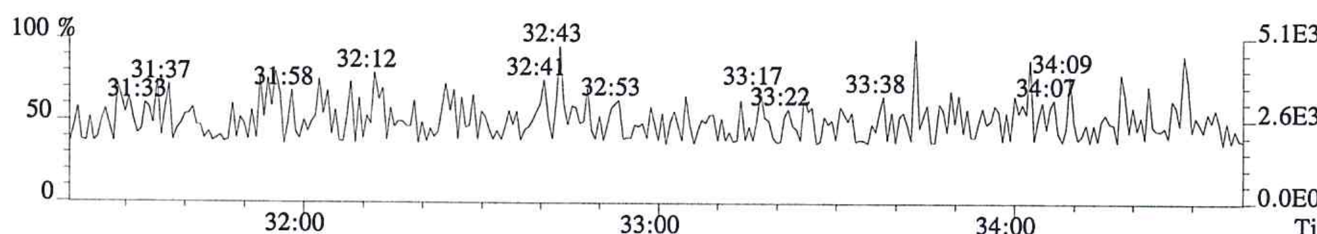
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



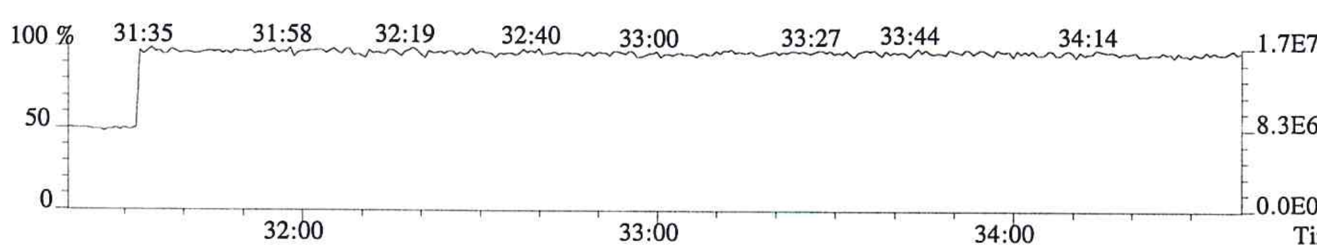
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



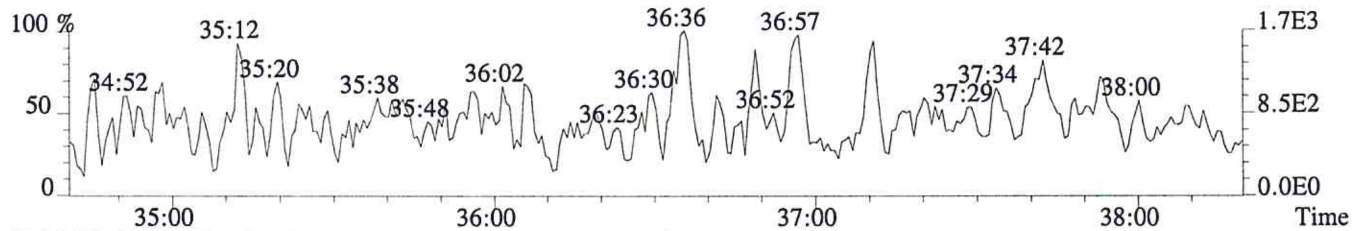
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



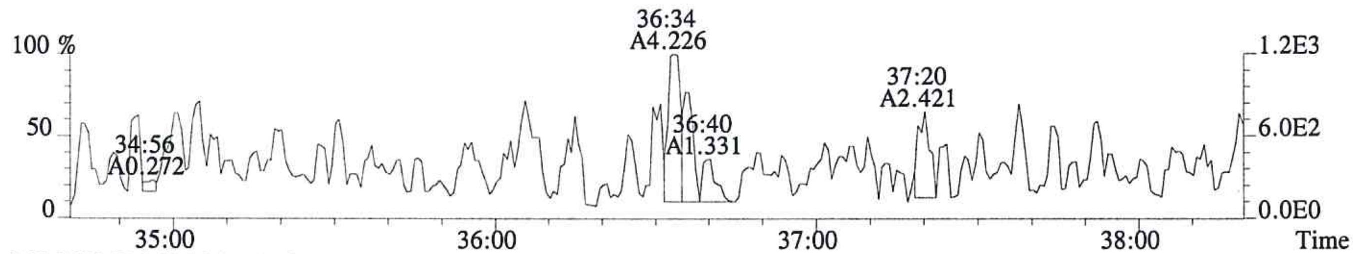
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



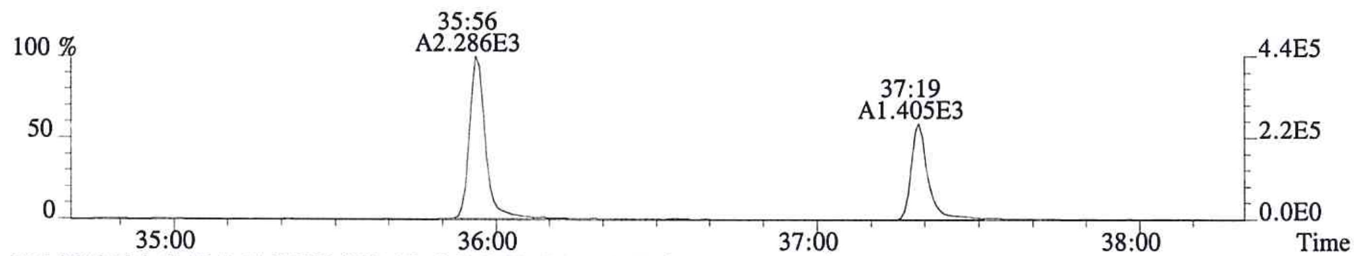
File:P604001 #1-329 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



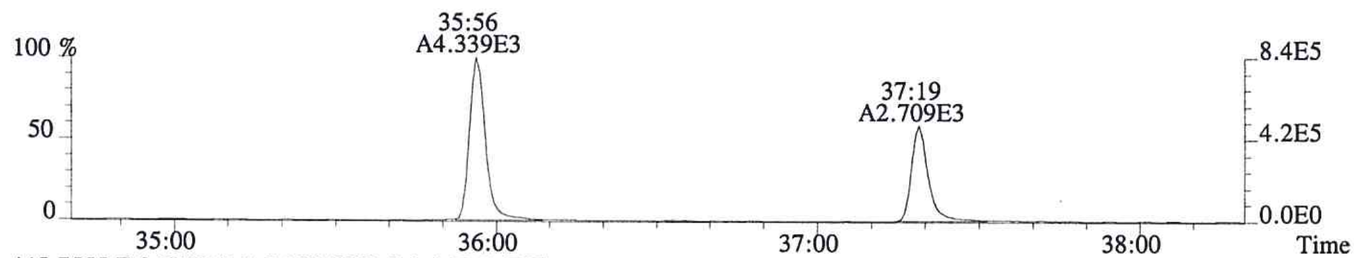
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



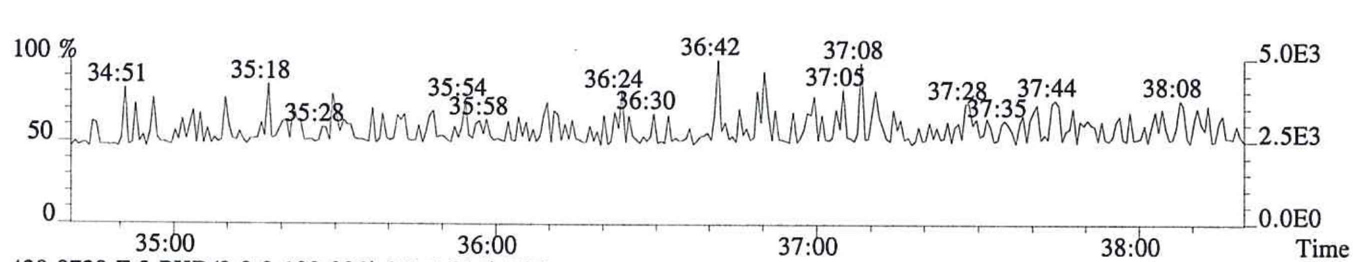
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



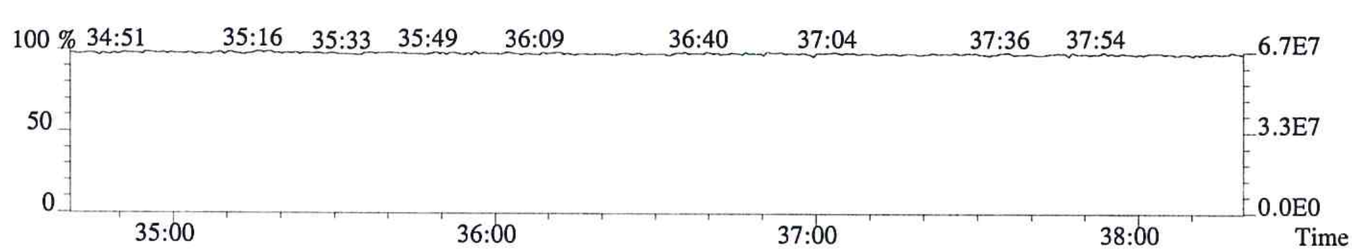
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.40%,F,T)



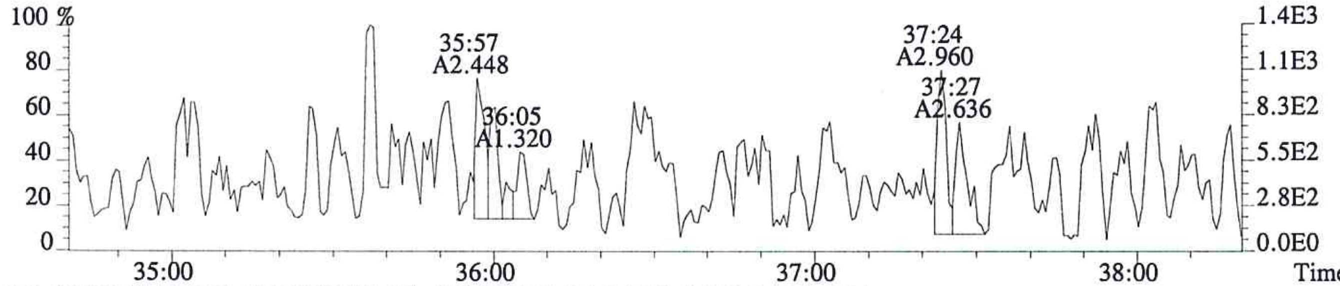
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



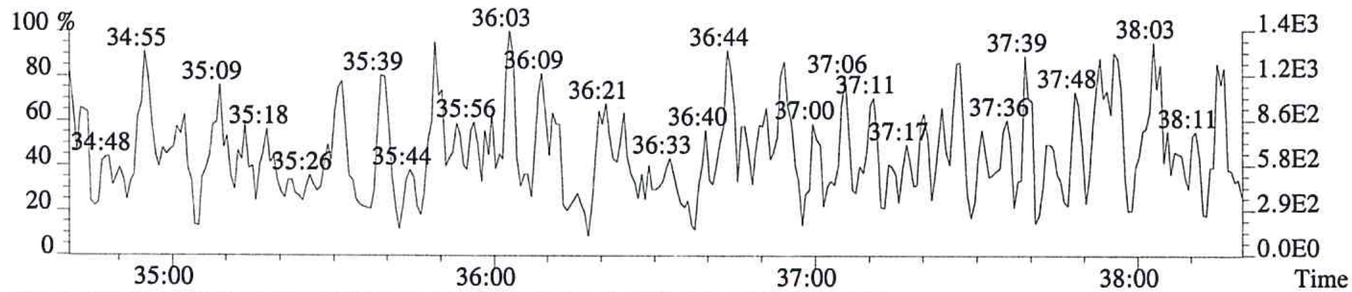
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



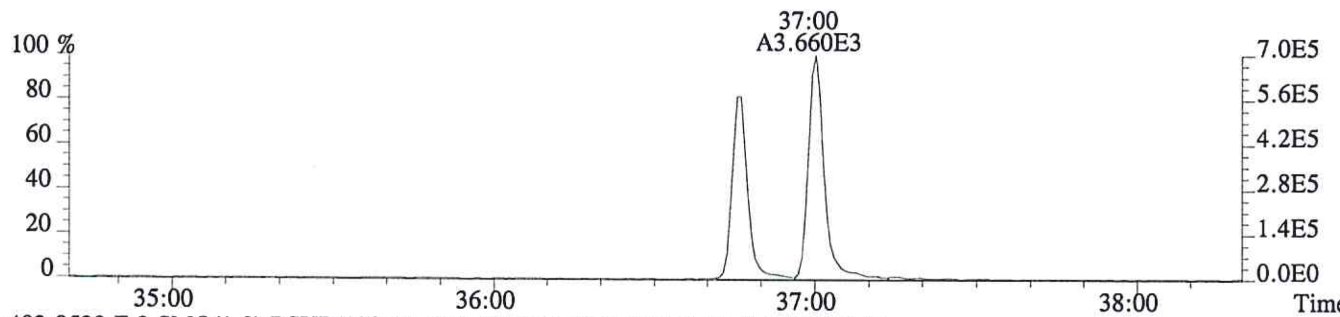
File:P604001 #1-329 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



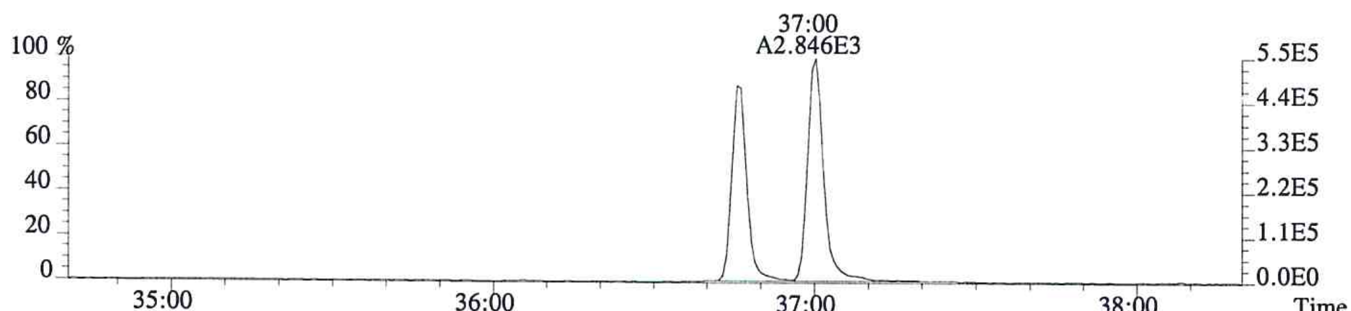
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



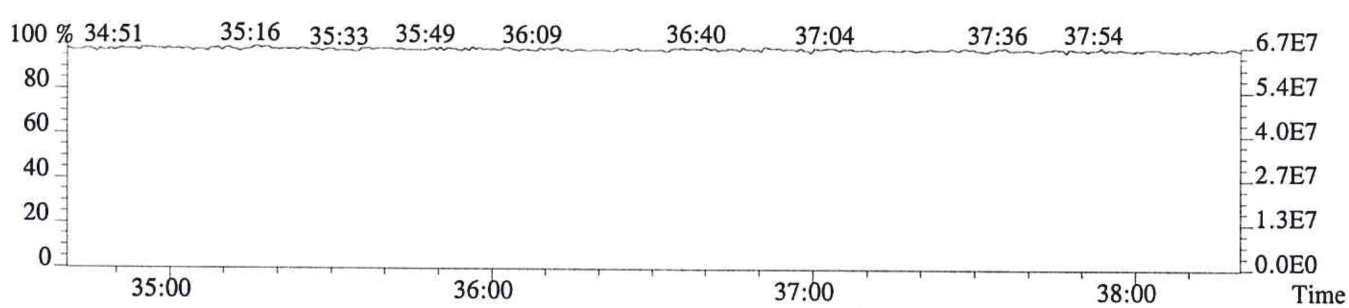
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW14

Run #12 Filename P604010 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:07:59
Processed: 7-JUL-16 10:26:15 Sample ID: E1600326-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	1.950e+03	2.562e+03	0.76	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	3.723e+03	2.354e+03	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	6.927e+02	4.206e+02	1.65	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.657e+03	5.412e+03	0.49	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	6.435e+02	8.888e+02	0.72	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	1.350e+03	1.813e+03	0.74	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	4.811e+03	6.255e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	6.939e+03	5.375e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	4.220e+02				no	0.945

EDL

TCDD = (1.50e+03 + 1.16e+03) x 1000 pg 1 x 2.5
-- = 11.25 ng/kg
(~~1.350e+03~~ + ~~1.813e+03~~) x 1.0 g x 100/ x 1.048
(2.39e+05 + 3.25e+05)

UM 07/07/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW14

Run #12 Filename P604010 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:07:59
Processed: 7-JUL-16 10:26:15 LAB. ID: E1600326-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.36e+02	*	*	2.80e+03	*
3	2,3,4,7,8-PeCDF	*	6.76e+02	*	*	1.67e+03	*
11	2,3,7,8-TCDD	*	1.50e+03	*	*	1.16e+03	*
18	13C-2,3,7,8-TCDF	3.37e+05	5.42e+03	6.2e+01	4.35e+05	2.86e+03	1.5e+02
19	13C-1,2,3,7,8-PeCDF	6.69e+05	1.24e+03	5.4e+02	4.21e+05	1.01e+03	4.2e+02
20	13C-2,3,4,7,8-PeCDF	1.35e+05	1.24e+03	1.1e+02	7.79e+04	1.01e+03	7.7e+01
24	13C-1,2,3,7,8,9-HxCDF	5.21e+05	8.08e+02	6.5e+02	1.06e+06	1.90e+03	5.6e+02
26	13C-1,2,3,4-TCDF	1.11e+05	5.42e+03	2.0e+01	1.43e+05	2.86e+03	5.0e+01
27	13C-2,3,7,8-TCDD	2.39e+05	8.46e+03	2.8e+01	3.25e+05	3.56e+03	9.1e+01
33	13C-1,2,3,4-TCDD	8.74e+05	8.46e+03	1.0e+02	1.17e+06	3.56e+03	3.3e+02
34	13C-1,2,3,7,8,9-HxCDD	1.38e+06	2.51e+03	5.5e+02	1.06e+06	1.20e+03	8.8e+02
35	37Cl-2,3,7,8-TCDD	7.41e+04	1.88e+03	3.9e+01			

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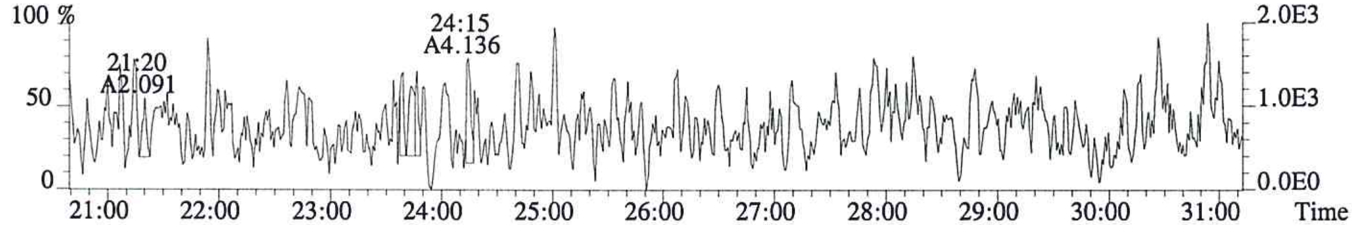
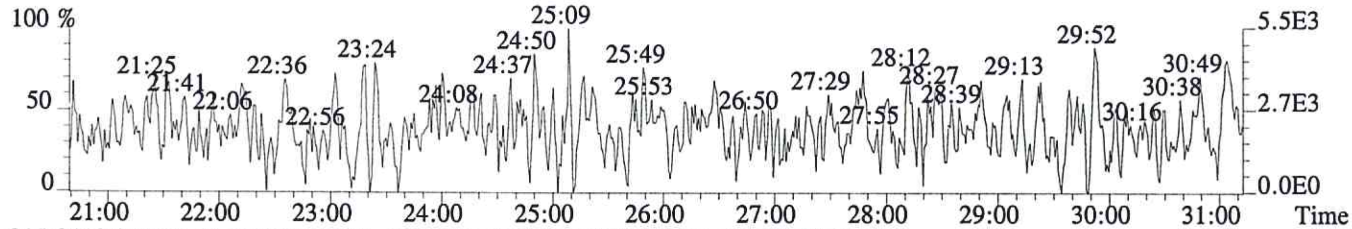
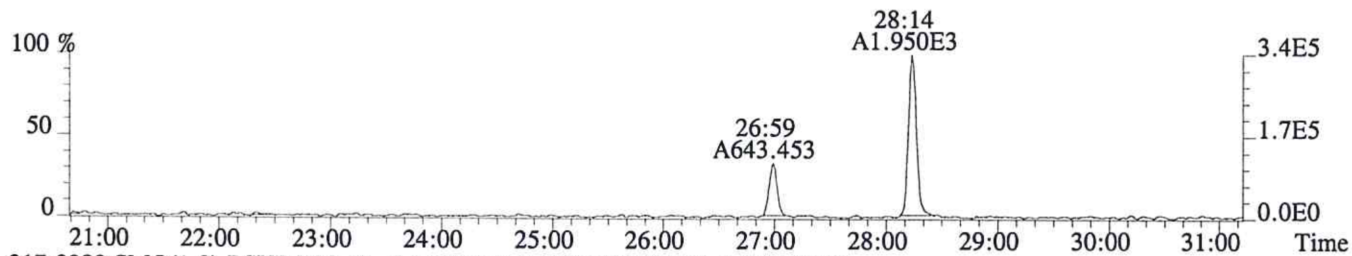
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



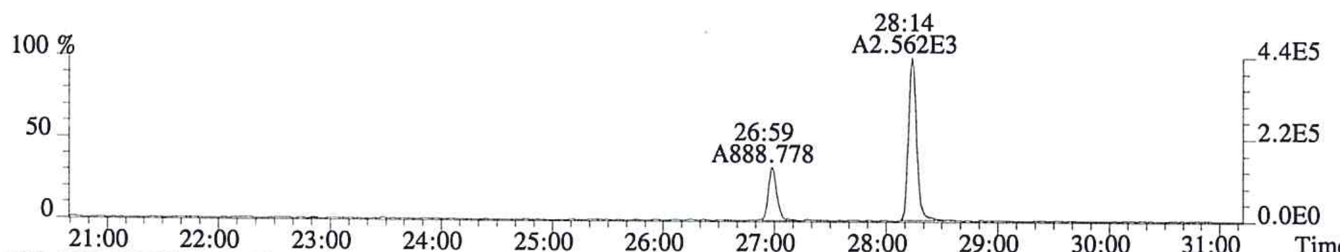
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



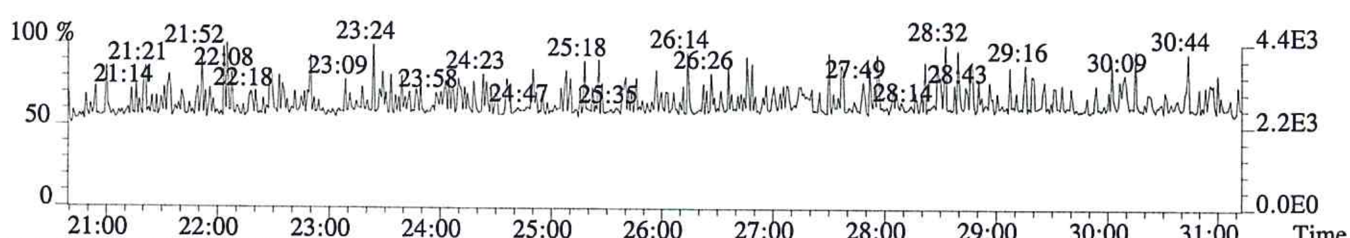
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



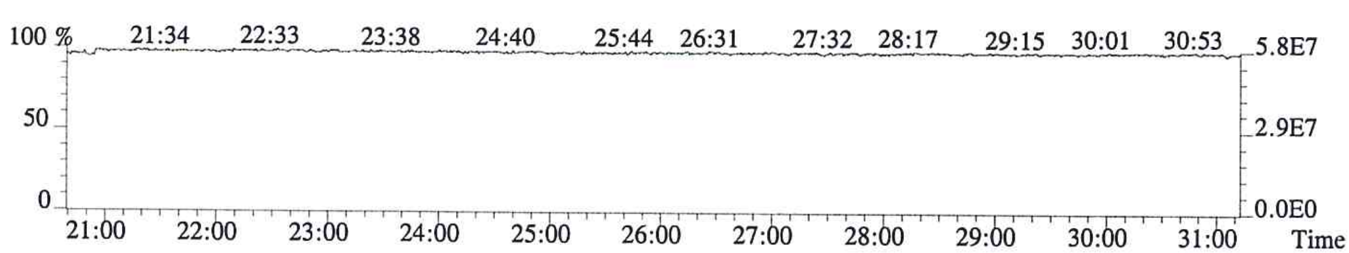
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



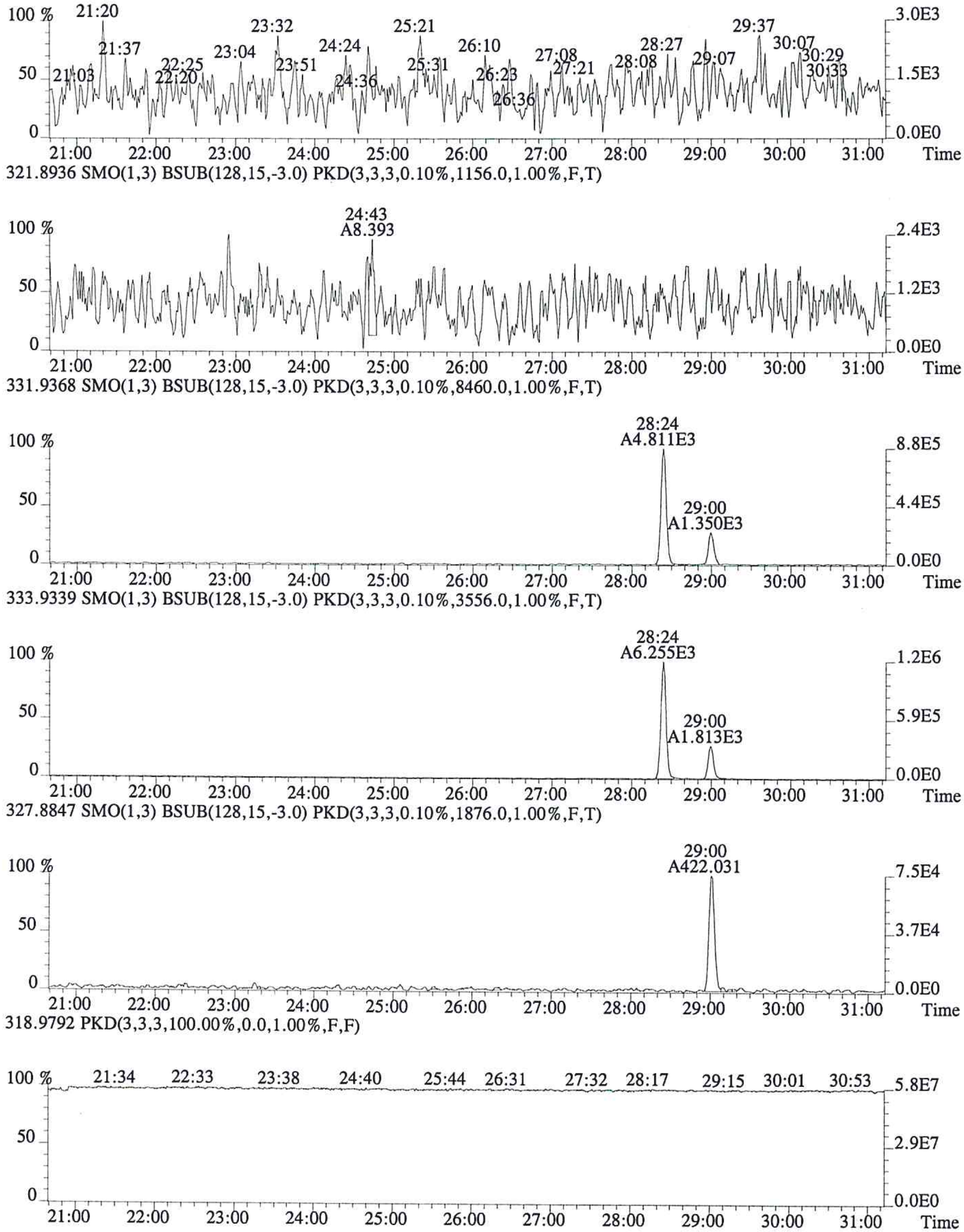
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



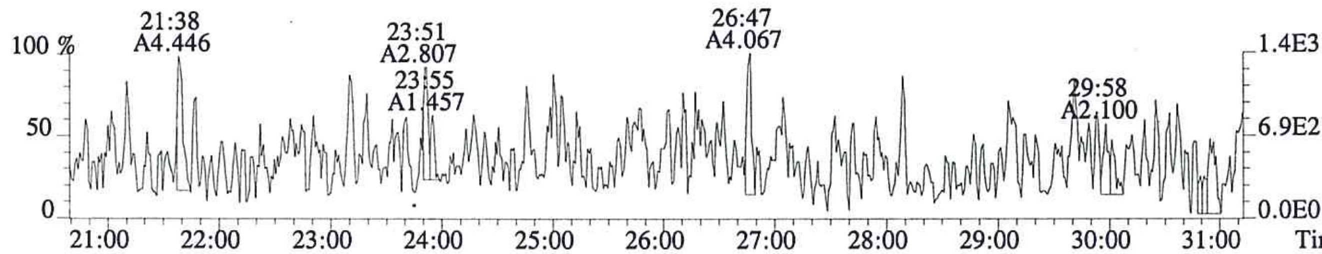
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



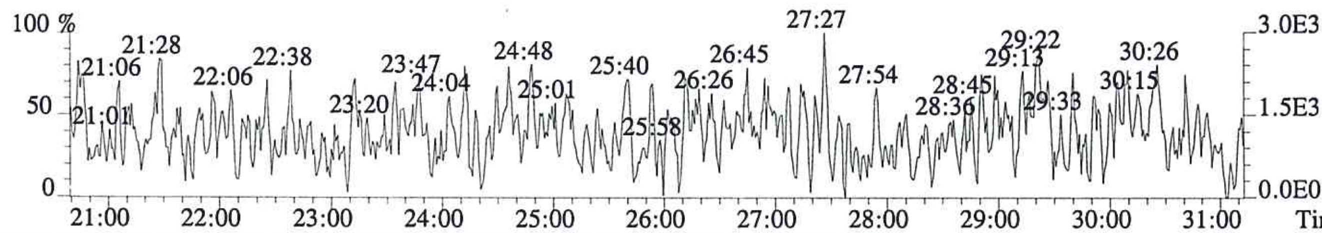
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



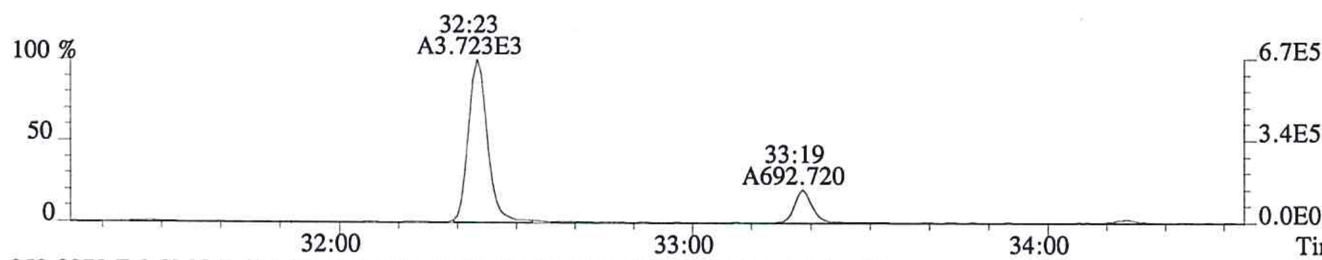
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



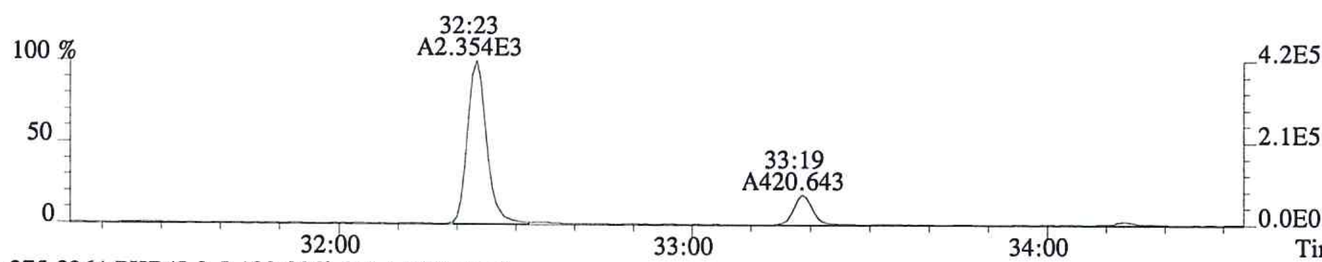
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



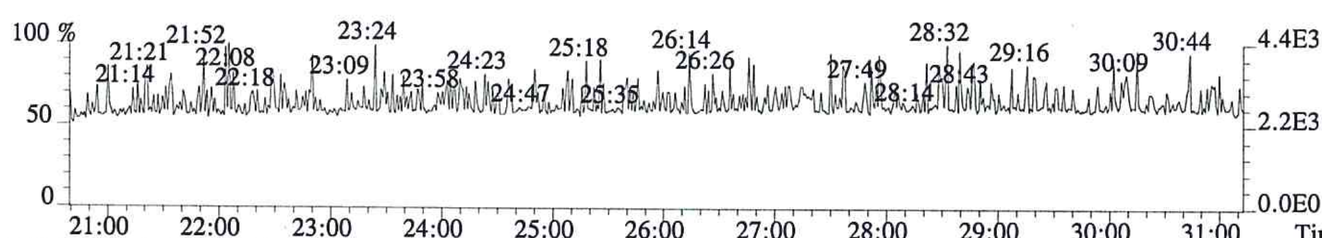
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



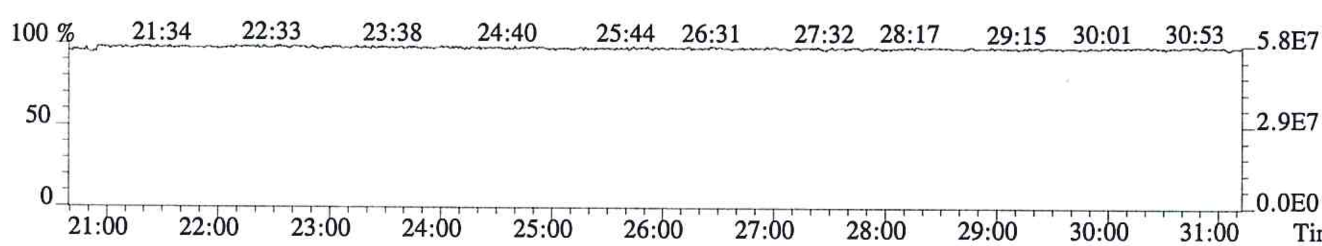
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



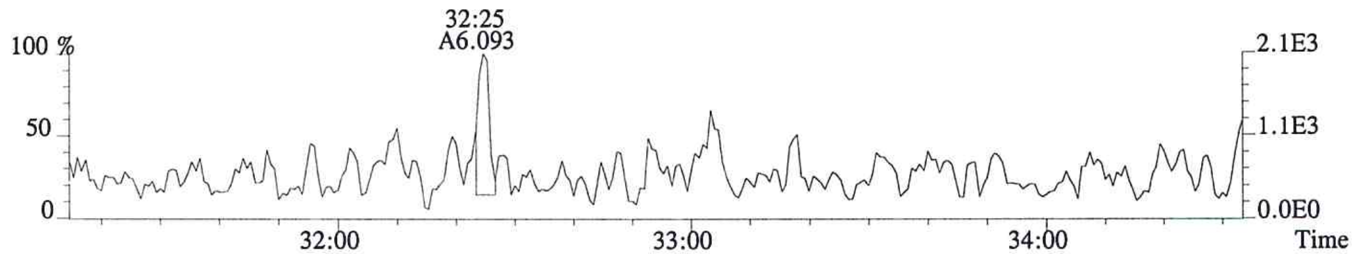
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



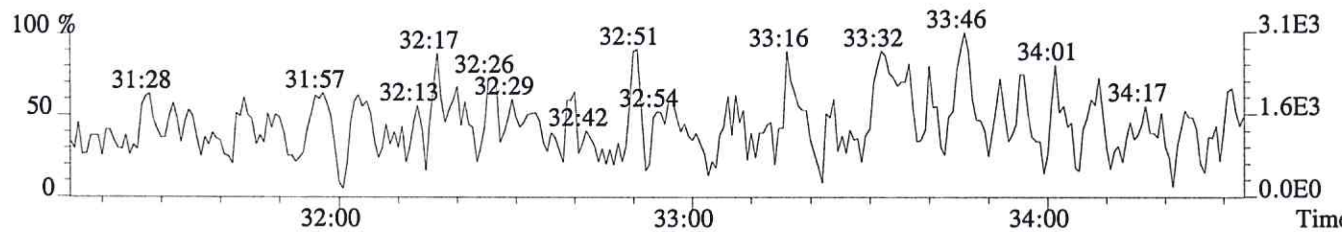
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



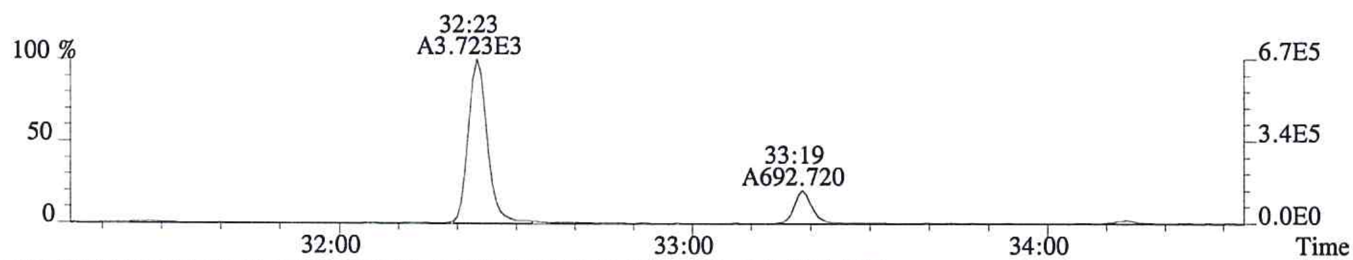
File:P604010 #1-299 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



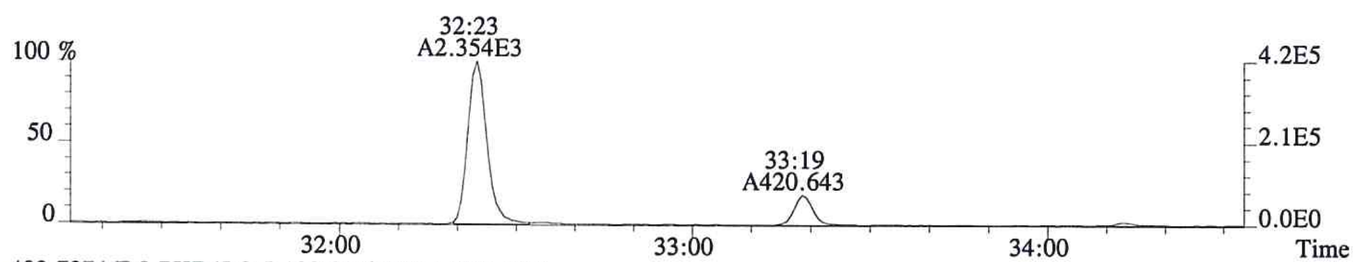
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



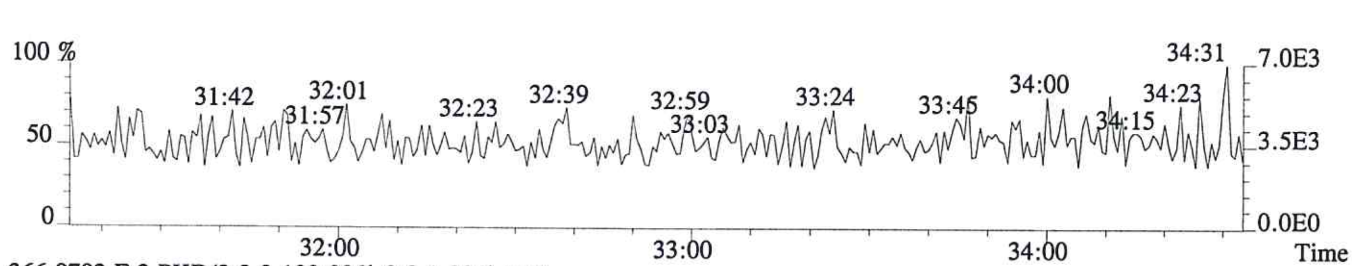
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



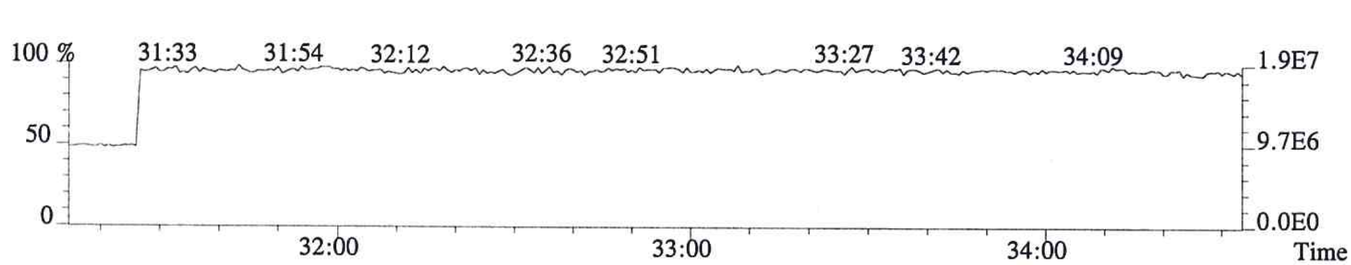
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



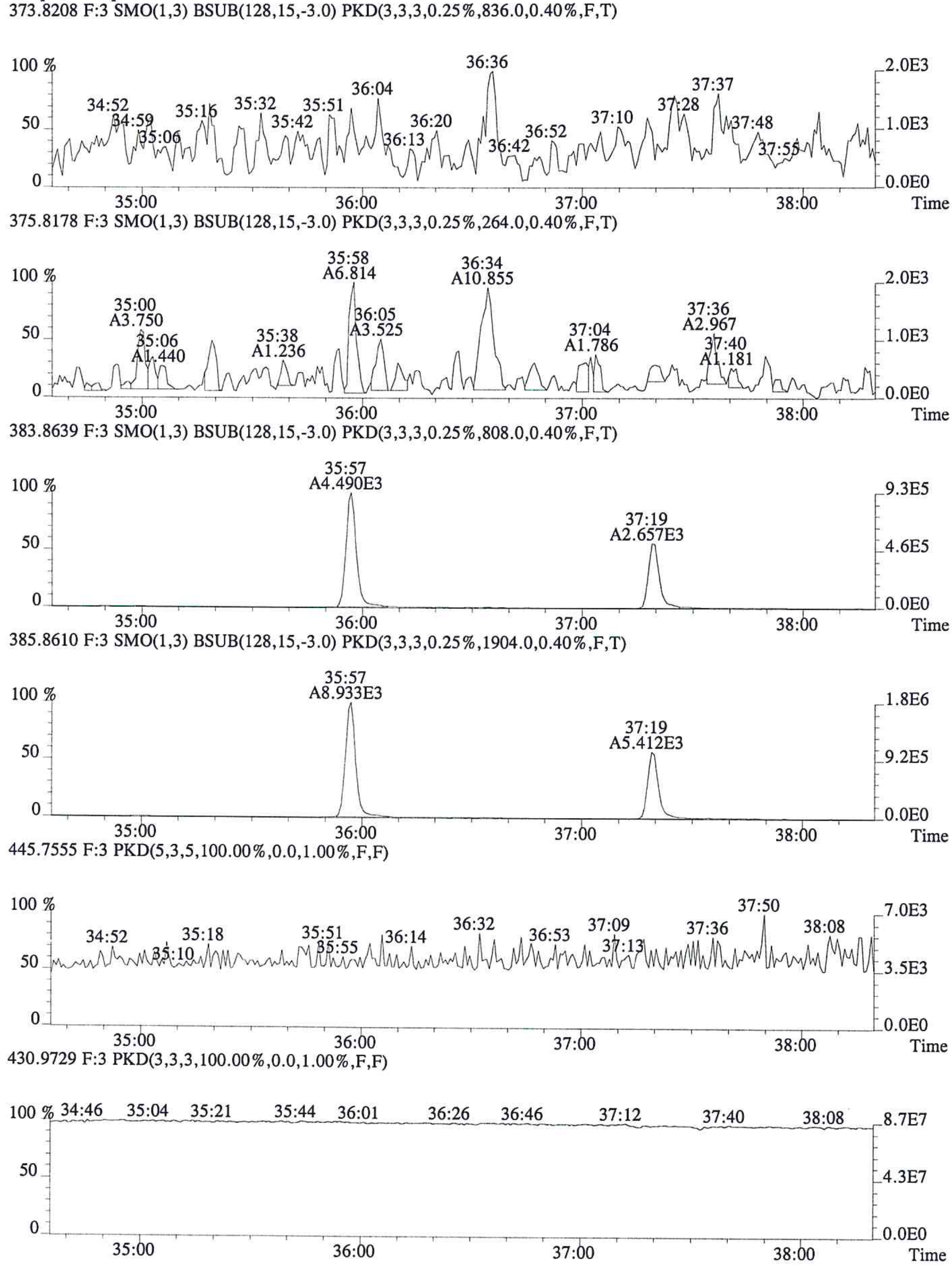
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



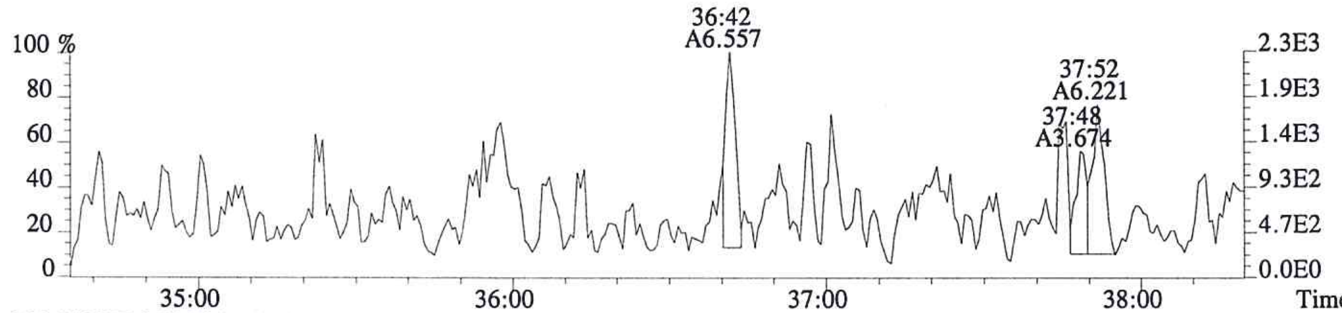
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



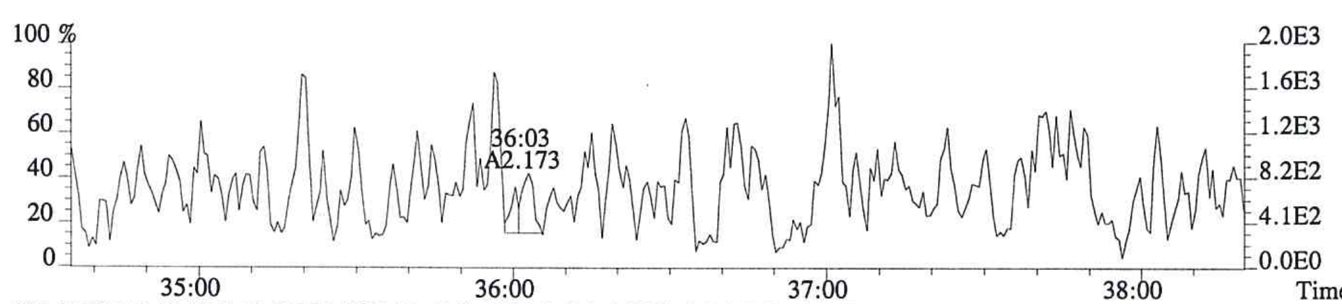
File:P604010 #1-337 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008



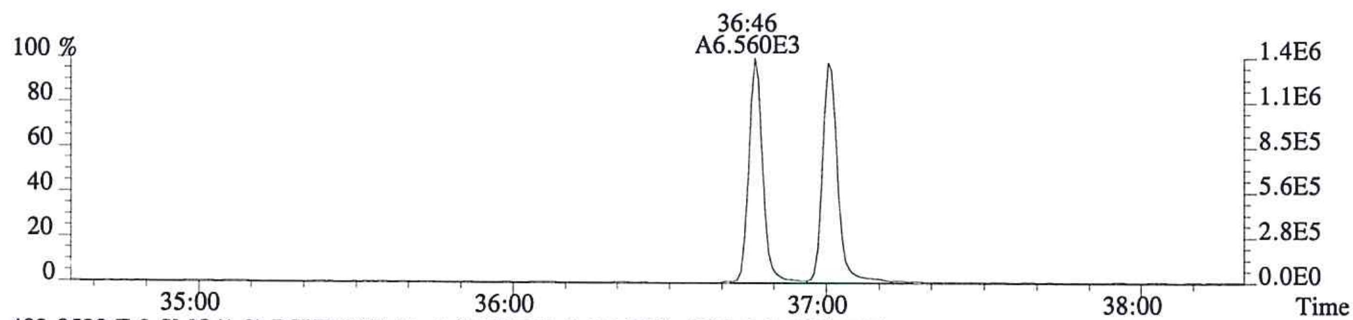
File:P604010 #1-337 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



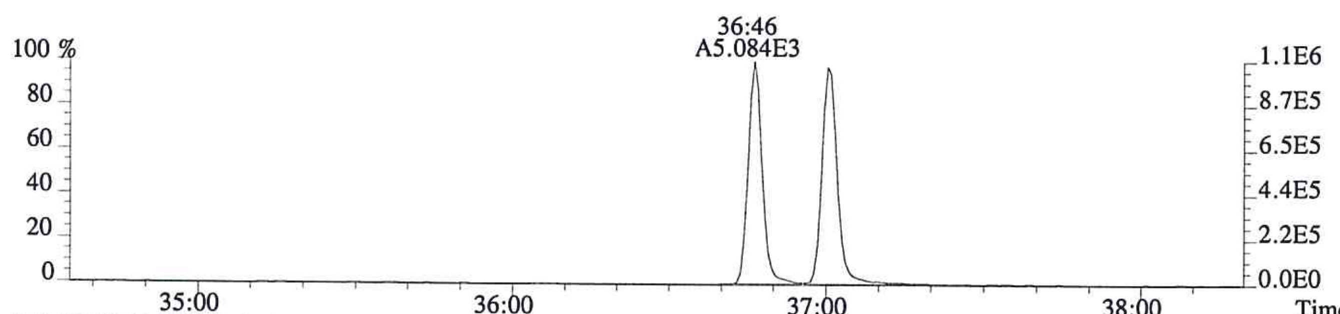
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



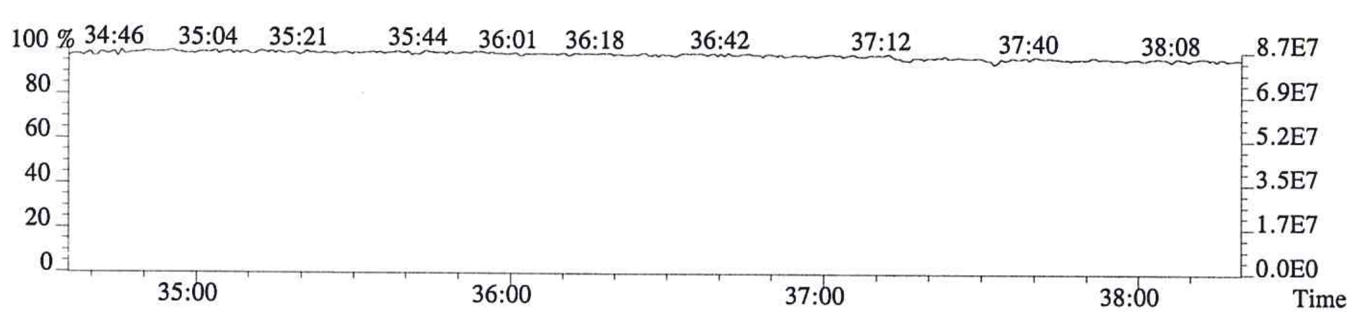
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW15

Run #13 Filename P604011 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:54:24
Processed: 7-JUL-16 10:26:16 Sample ID: E1600326-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.584e+04	1.994e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:21	2.740e+04	1.737e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.757e+03	2.932e+03	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.931e+04	3.838e+04	0.50	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:56	4.721e+03	5.988e+03	0.79	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.149e+04	1.473e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	3.901e+04	4.972e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.445e+04	3.489e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:58	3.377e+03				no	0.945

EDL

TCDD = (1.22e+03 + 1.50e+03) x 1000 pg 1 x 2.5 / (~~1.149e+04~~ + ~~1.473e+04~~) (2.23e+06 + 2.82e+06) x 1.0 g x 100 / x 1.048 = 1.28 ng/kg

UM 07/07/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW15

Run #13 Filename P604011 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:54:24
Processed: 7-JUL-16 10:26:16 LAB. ID: E1600326-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.28e+03	*	*	2.46e+03	*
3	2,3,4,7,8-PeCDF	*	9.32e+02	*	*	1.50e+03	*
11	2,3,7,8-TCDD	*	1.22e+03	*	*	1.50e+03	*
18	13C-2,3,7,8-TCDF	2.91e+06	6.23e+03	4.7e+02	3.61e+06	3.14e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	5.12e+06	1.12e+03	4.6e+03	3.23e+06	1.09e+03	3.0e+03
20	13C-2,3,4,7,8-PeCDF	9.10e+05	1.12e+03	8.1e+02	5.62e+05	1.09e+03	5.1e+02
24	13C-1,2,3,7,8,9-HxCDF	3.89e+06	1.14e+03	3.4e+03	7.80e+06	2.08e+03	3.8e+03
26	13C-1,2,3,4-TCDF	7.79e+05	6.23e+03	1.2e+02	9.80e+05	3.14e+03	3.1e+02
27	13C-2,3,7,8-TCDD	2.23e+06	9.68e+03	2.3e+02	2.82e+06	4.46e+03	6.3e+02
33	13C-1,2,3,4-TCDD	7.43e+06	9.68e+03	7.7e+02	9.48e+06	4.46e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	9.28e+06	2.13e+03	4.4e+03	7.45e+06	1.66e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	6.42e+05	2.12e+03	3.0e+02			

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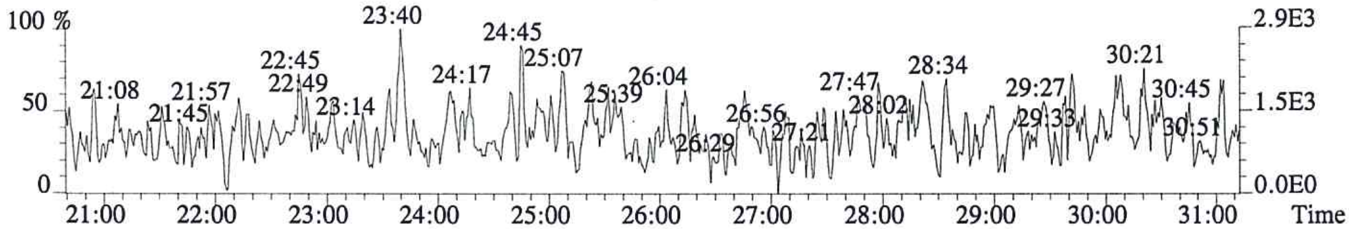
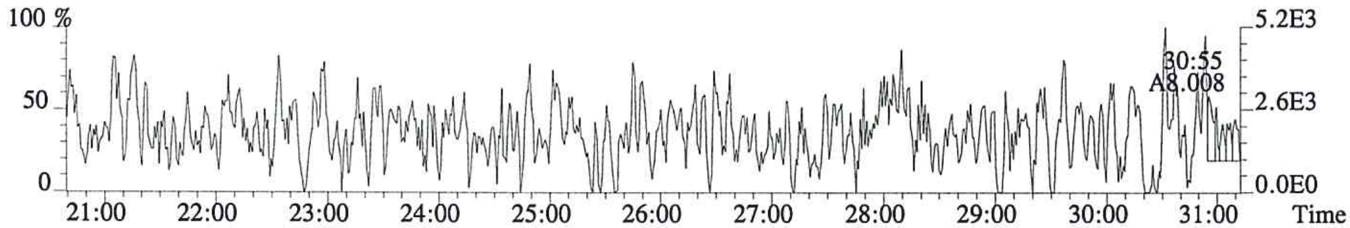
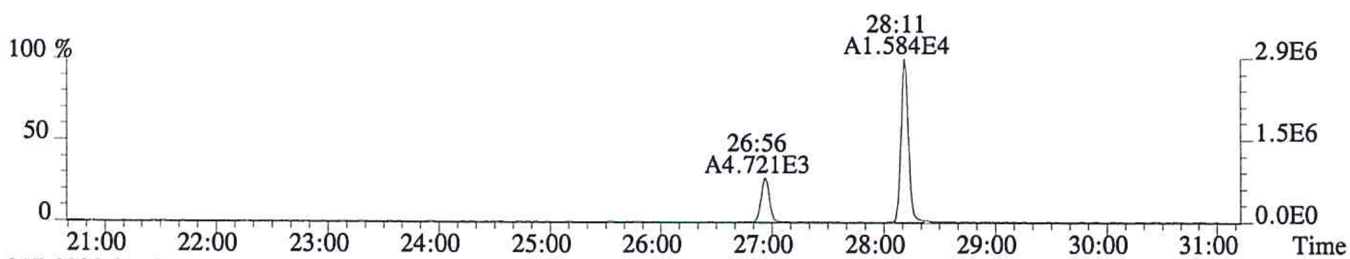
File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



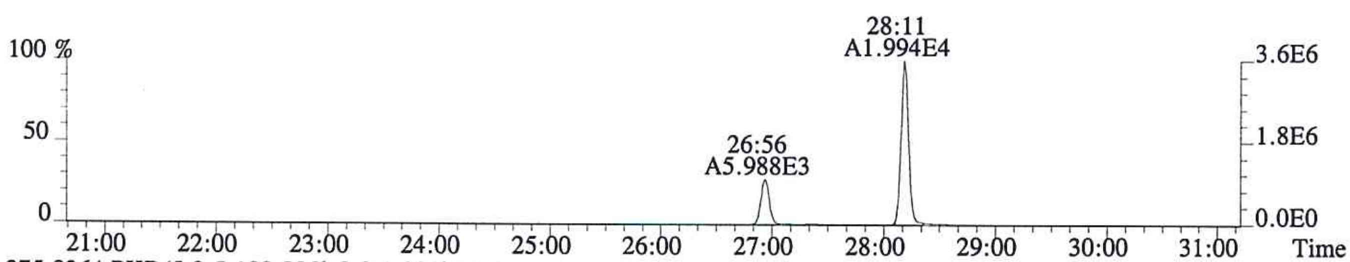
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



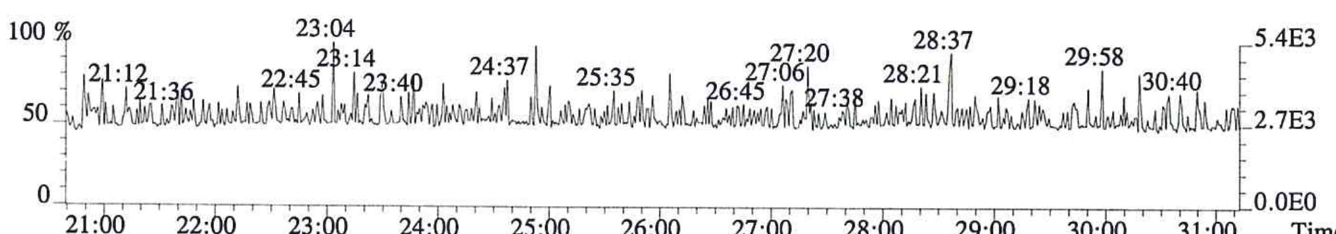
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6232.0,1.00%,F,T)



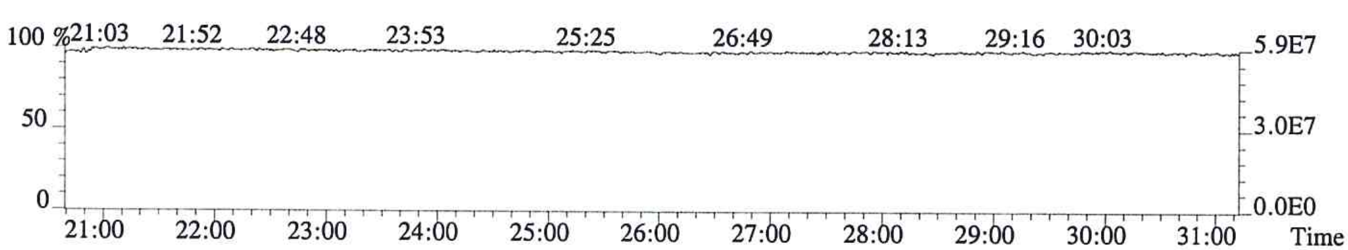
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

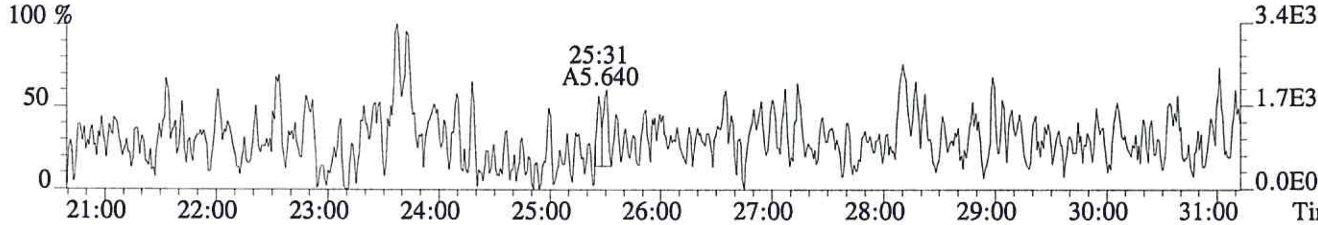


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

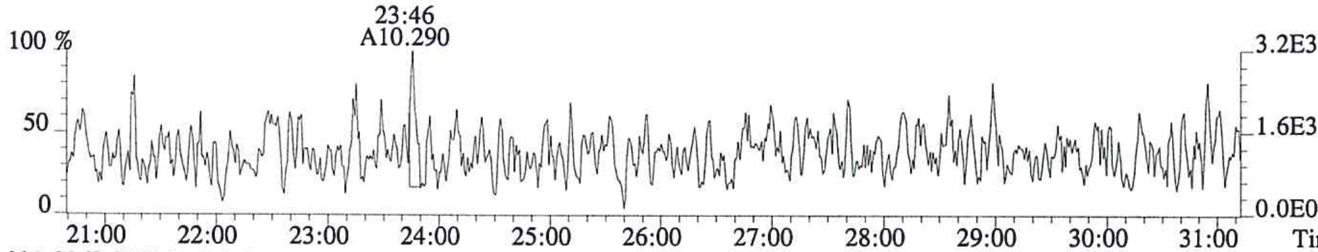


File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009

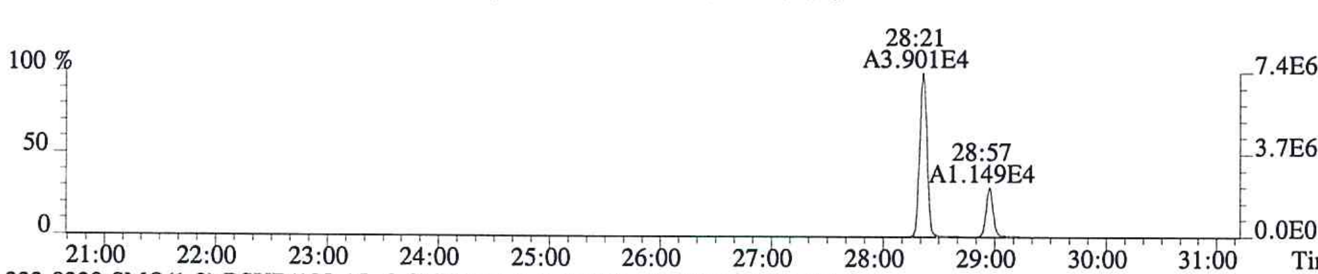
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



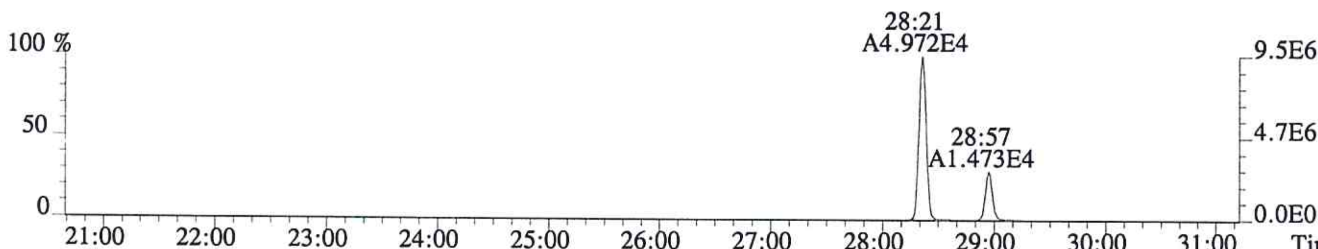
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



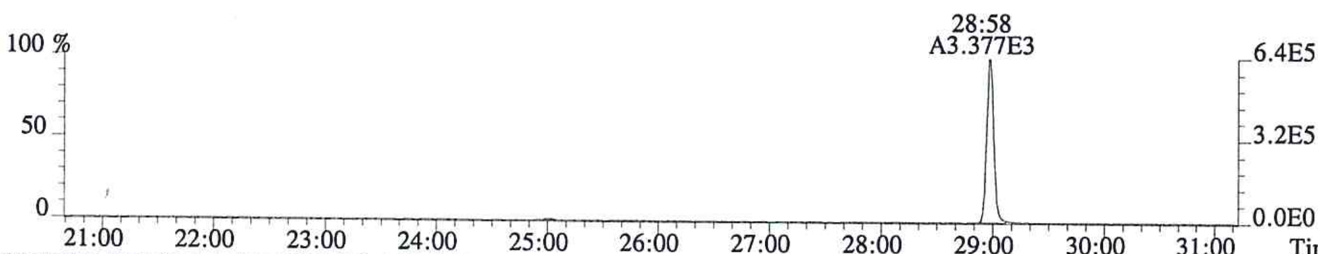
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9680.0,1.00%,F,T)



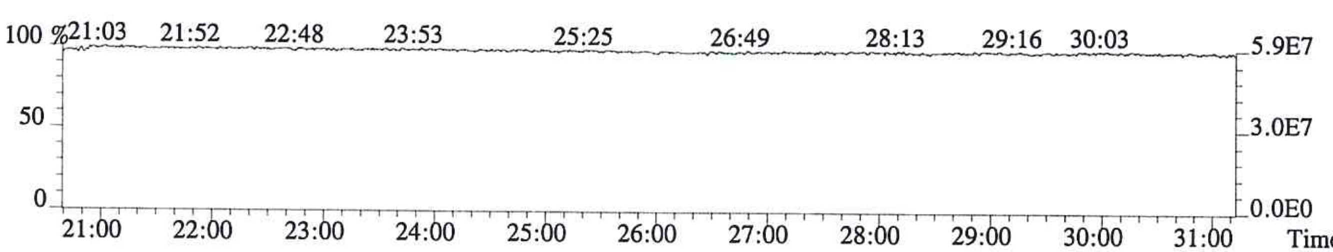
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4464.0,1.00%,F,T)



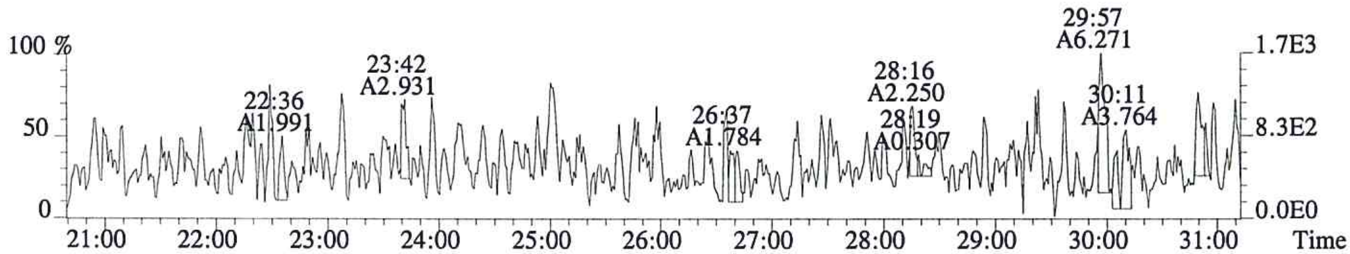
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



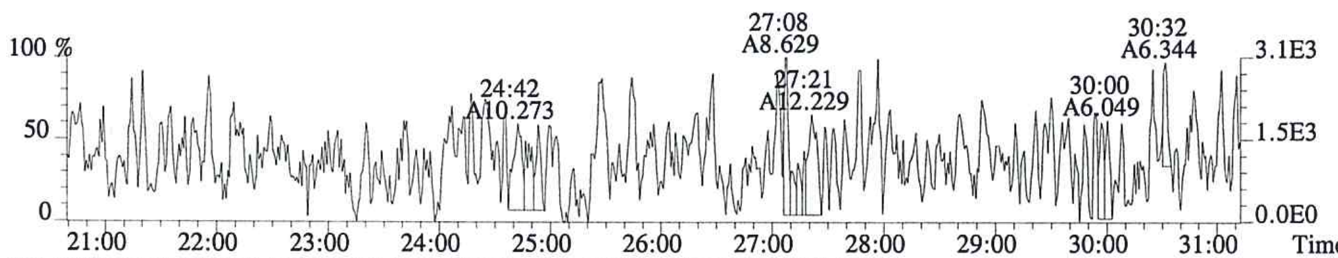
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



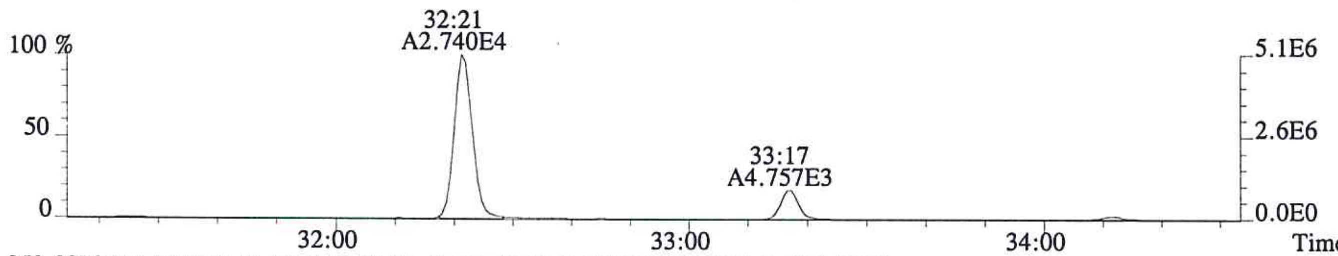
File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



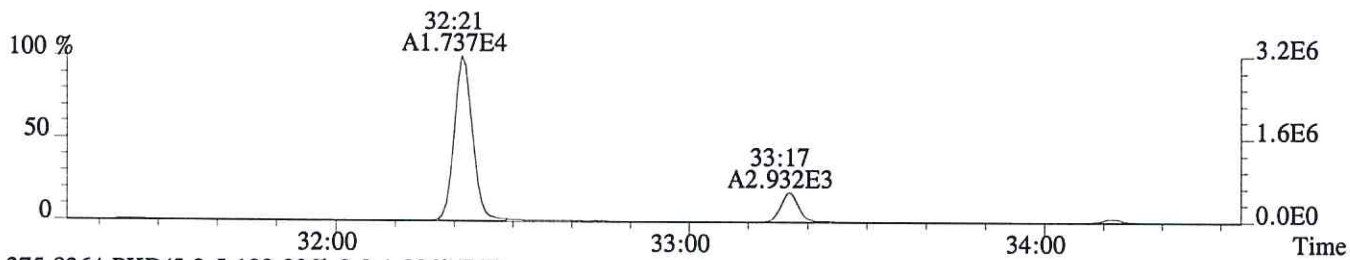
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



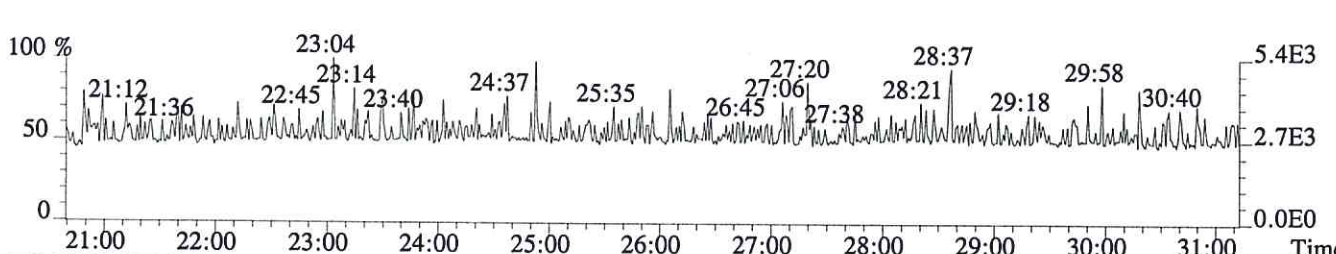
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



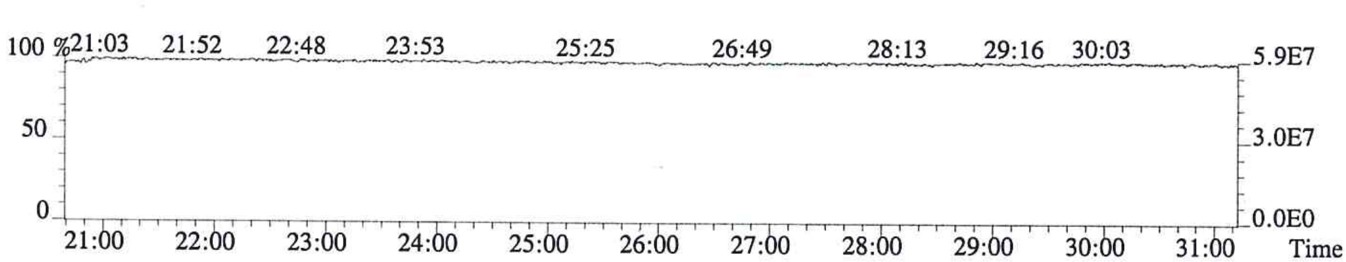
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



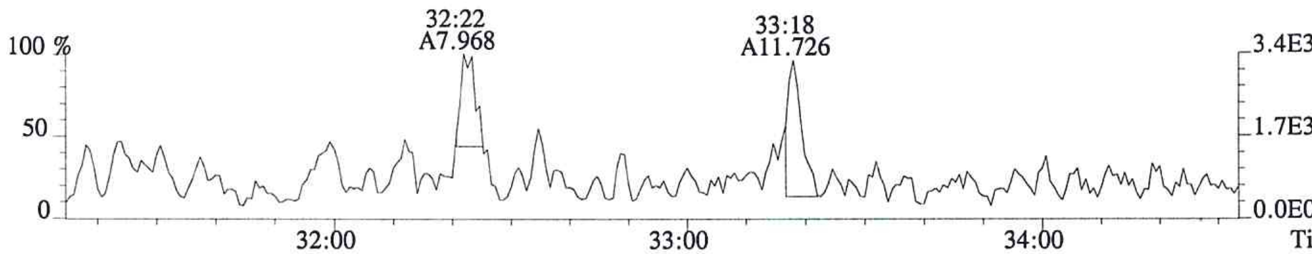
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



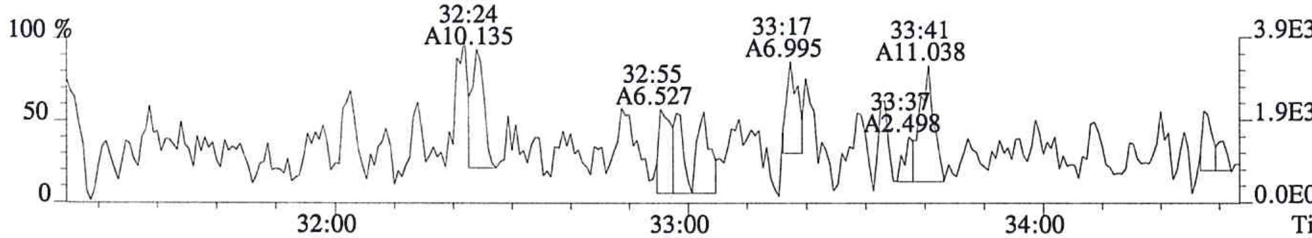
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



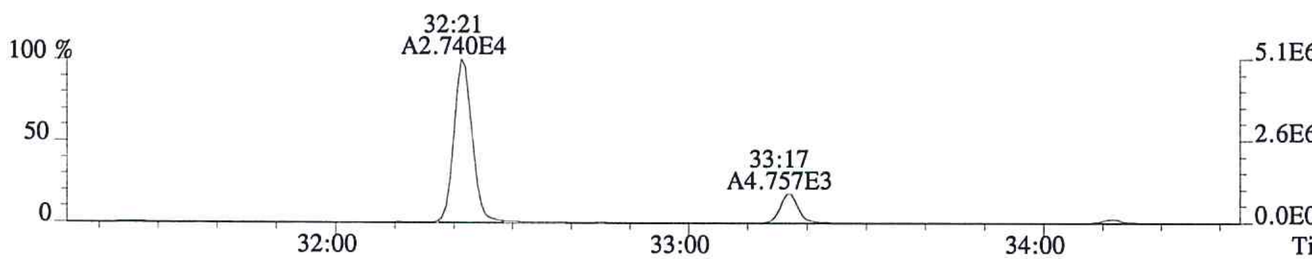
File:P604011 #1-299 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



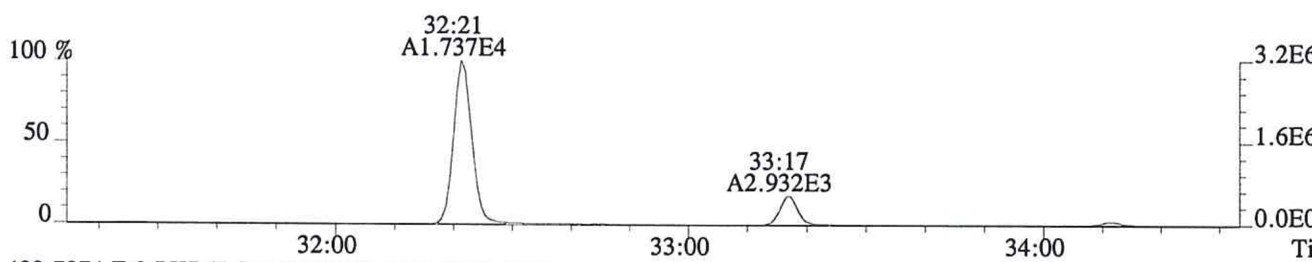
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



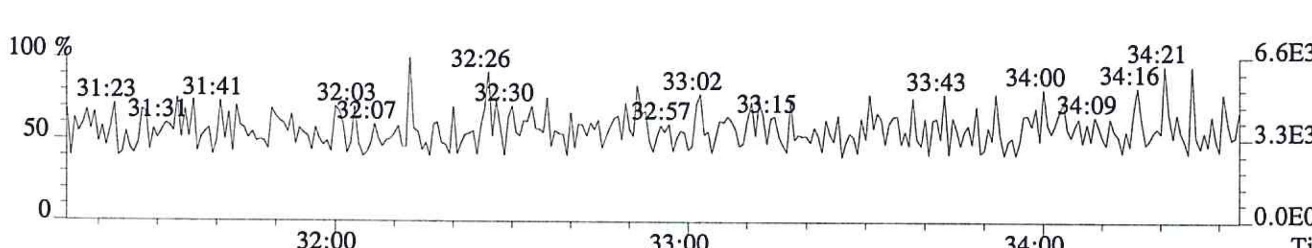
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



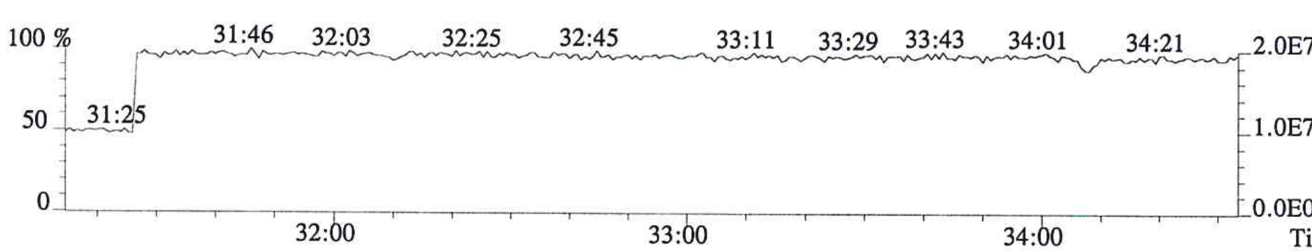
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



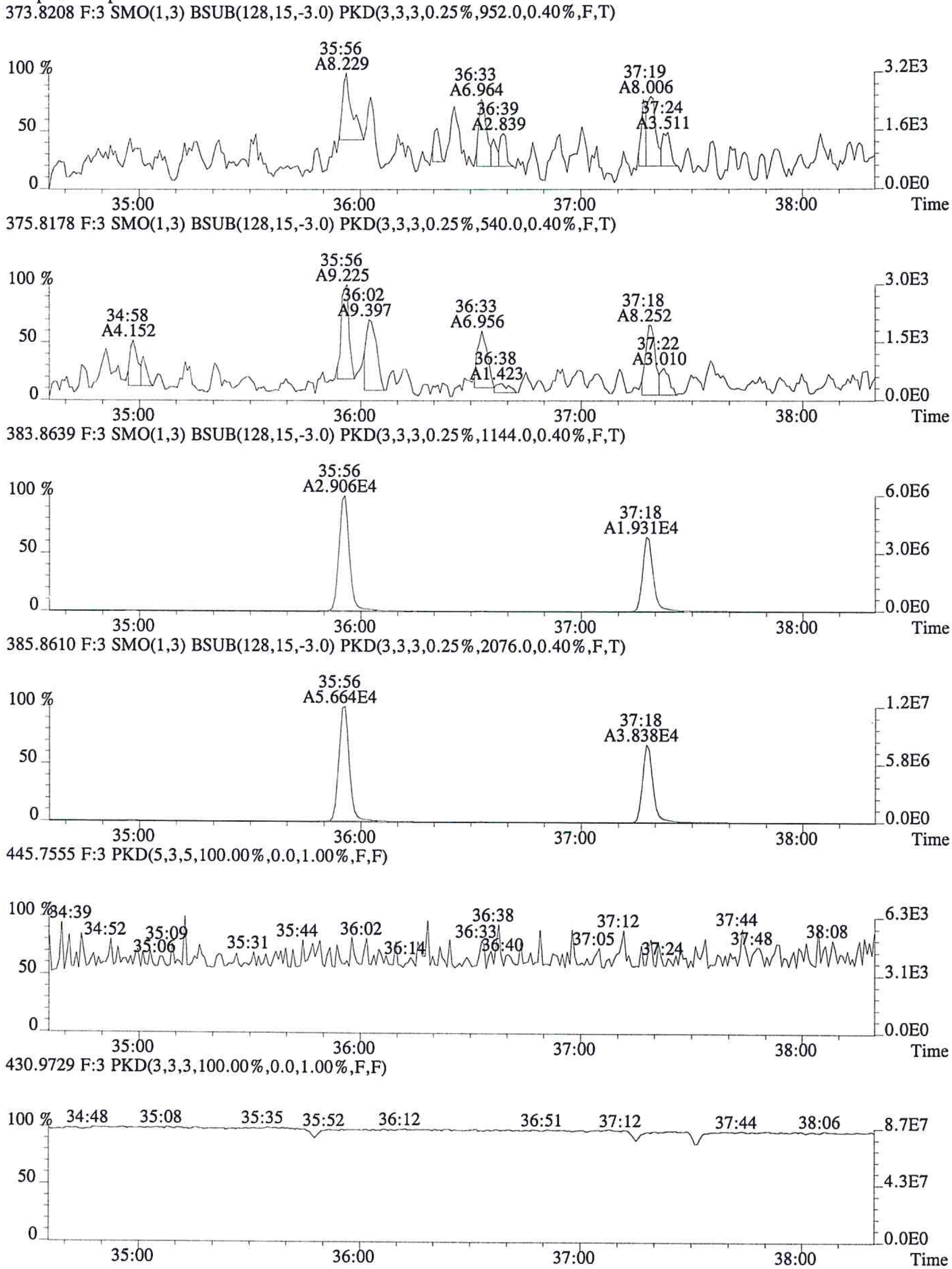
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



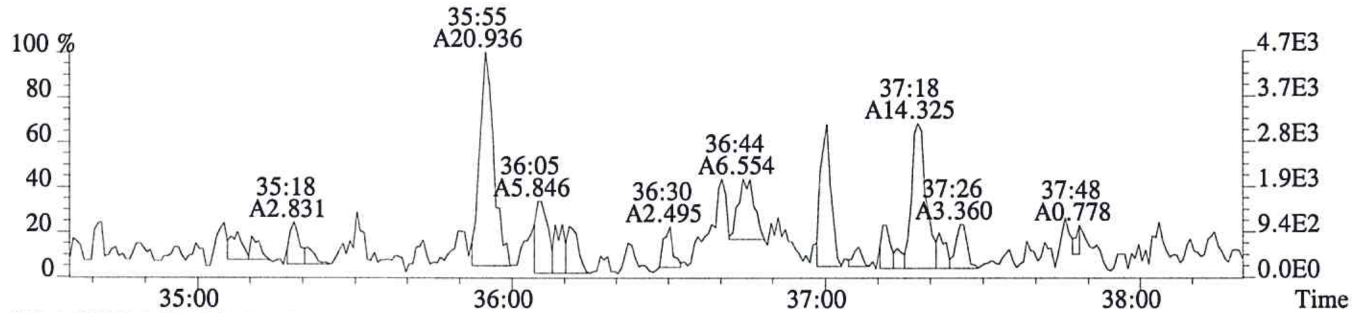
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



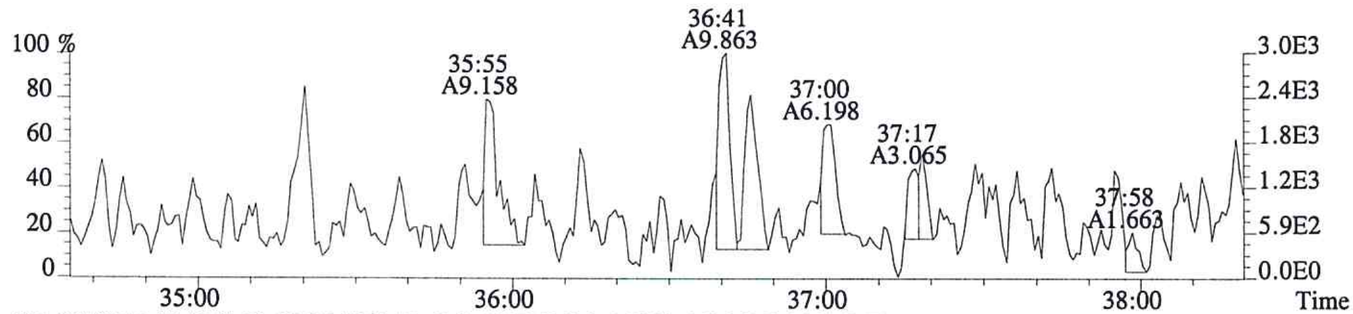
File:P604011 #1-337 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009



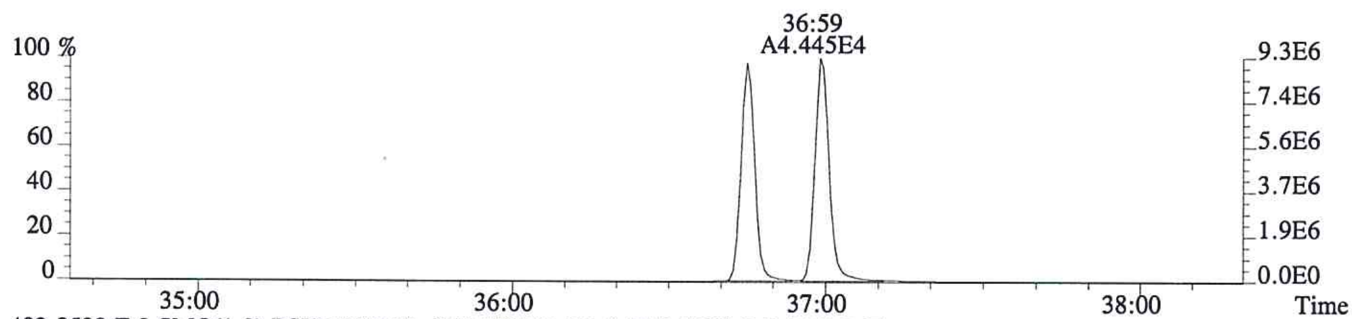
File:P604011 #1-337 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



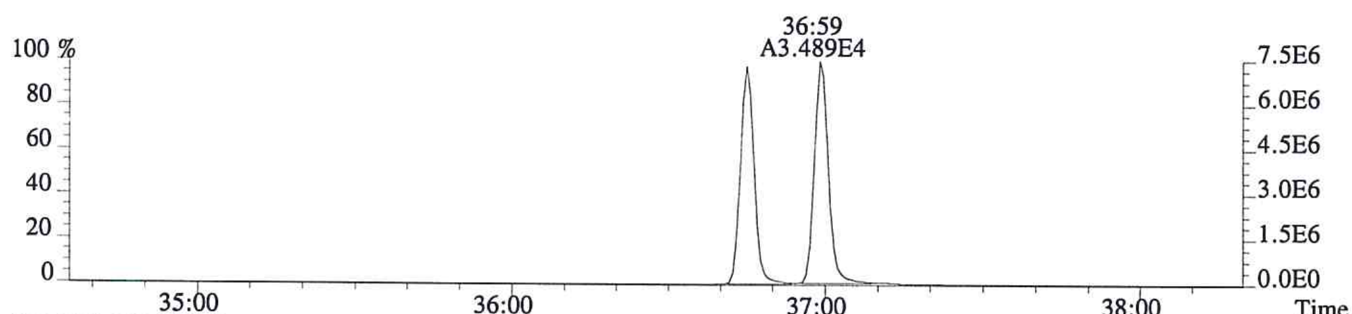
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



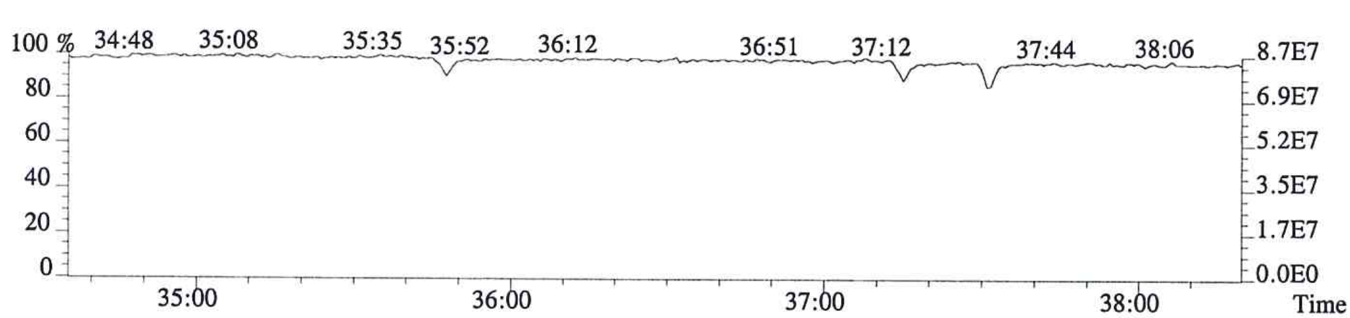
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 Sample ID: EQ1600219-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.809e+01	3.936e+01	1.22	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.349e+04	4.194e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	4.984e+04	3.137e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.723e+04	2.963e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.878e+04	5.649e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.559e+04	3.261e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.155e+04	3.965e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.547e+04	2.995e+04	1.18	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	6.727e+01				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 LAB. ID: EQ1600219-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.18e+03	*	*	3.42e+03	*
3	2,3,4,7,8-PeCDF	9.96e+03	6.92e+02	1.4e+01	8.22e+03	1.70e+03	4.8e+00
11	2,3,7,8-TCDD	*	1.70e+03	*	*	1.42e+03	*
18	13C-2,3,7,8-TCDF	6.07e+06	6.55e+03	9.3e+02	7.58e+06	3.48e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	9.10e+06	7.38e+03	1.2e+03	5.72e+06	5.96e+03	9.6e+02
20	13C-2,3,4,7,8-PeCDF	9.20e+06	7.38e+03	1.2e+03	5.79e+06	5.96e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	5.77e+06	1.08e+03	5.3e+03	1.10e+07	2.23e+03	4.9e+03
26	13C-1,2,3,4-TCDF	*	6.55e+03	*	*	3.48e+03	*
27	13C-2,3,7,8-TCDD	4.95e+06	9.06e+03	5.5e+02	6.29e+06	3.78e+03	1.7e+03
33	13C-1,2,3,4-TCDD	6.03e+06	9.06e+03	6.7e+02	7.53e+06	3.78e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.29e+06	2.17e+03	3.4e+03	5.91e+06	1.44e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.20e+04	2.08e+03	5.8e+00			

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 39 Totals Name: Total Penta-Furans2

Run: 8 File: P603993 Sample:1 Injection:1 Function:2

Acquired: 25-JUN-16 19:48:09 Processed: 1-JUL-16 11:44:18

Mass: 339.8600 341.8570 Tot Response: 1.28e+02 RRF: 0.9596

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:23	7.46e+01	5.34e+01	1.40	yes	1.28e+02	1,2,3,7,8-PeCDF	n	n

ALS ENVIRONMENTAL
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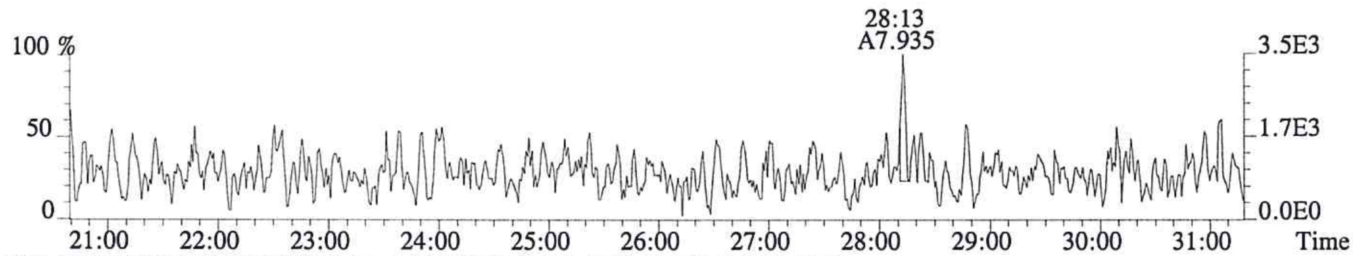
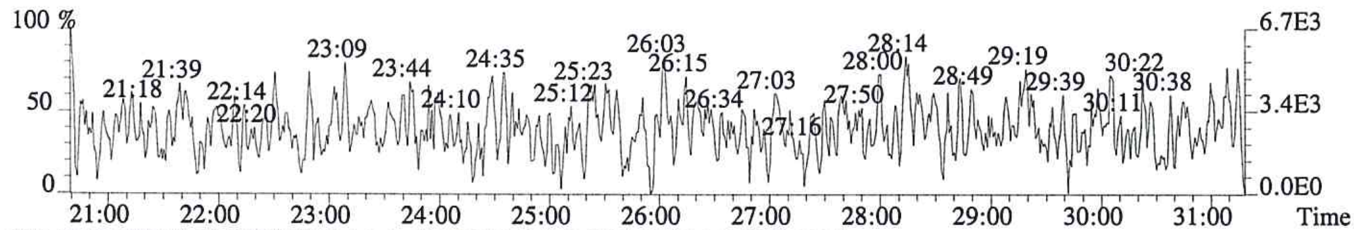
www.alsglobal.com

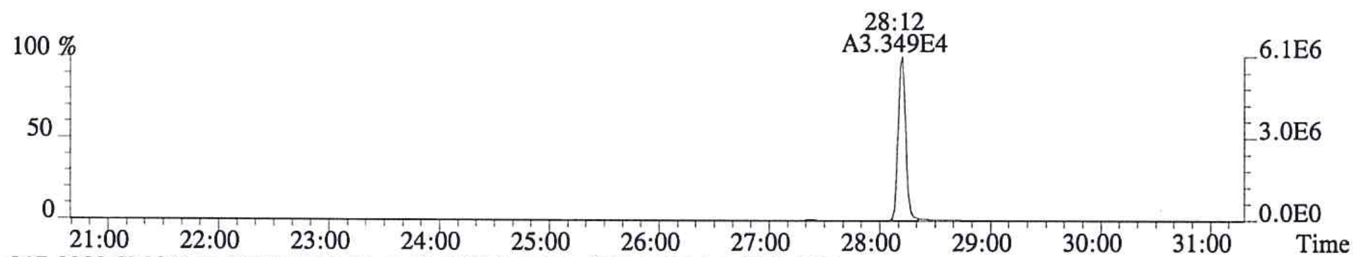
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



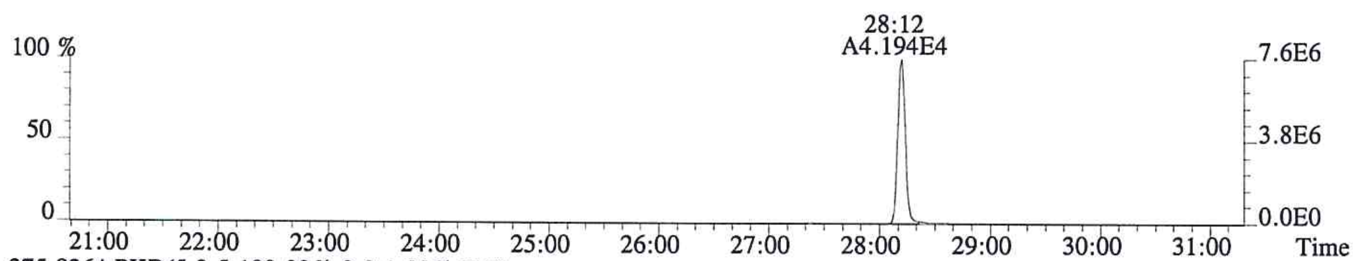
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3424.0,1.00%,F,T)



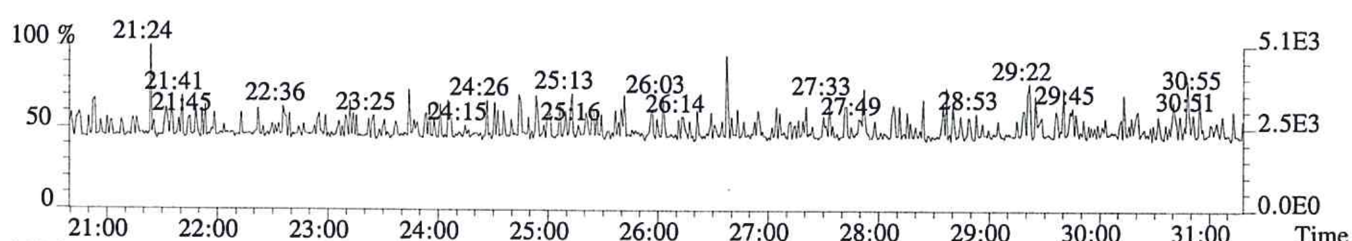
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6552.0,1.00%,F,T)



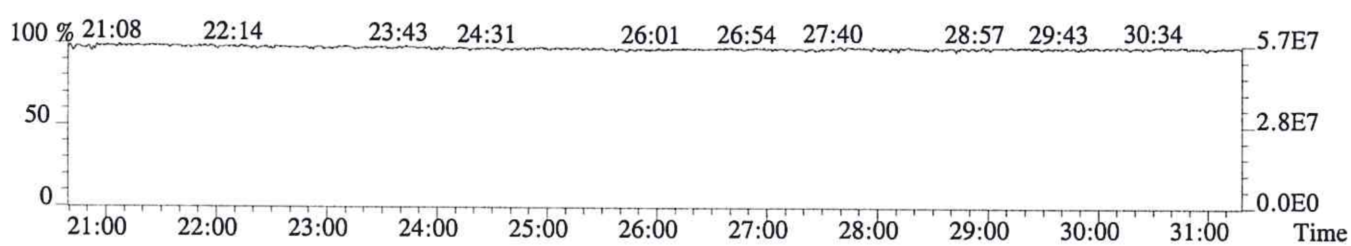
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



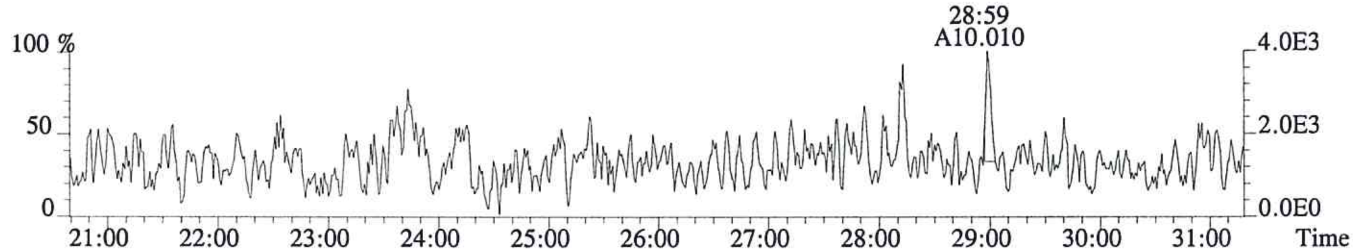
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



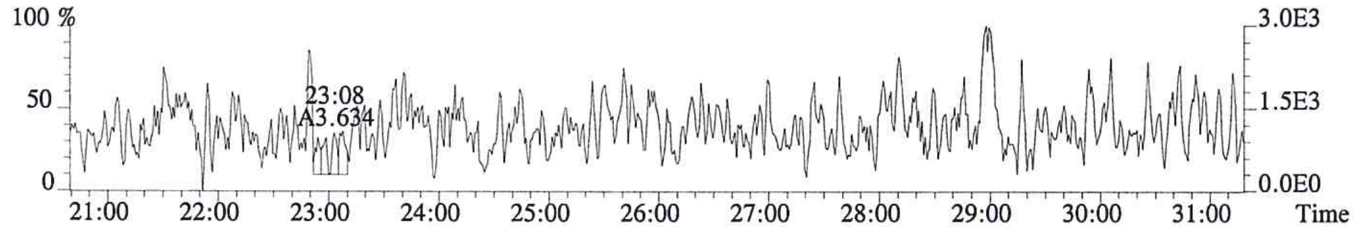
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



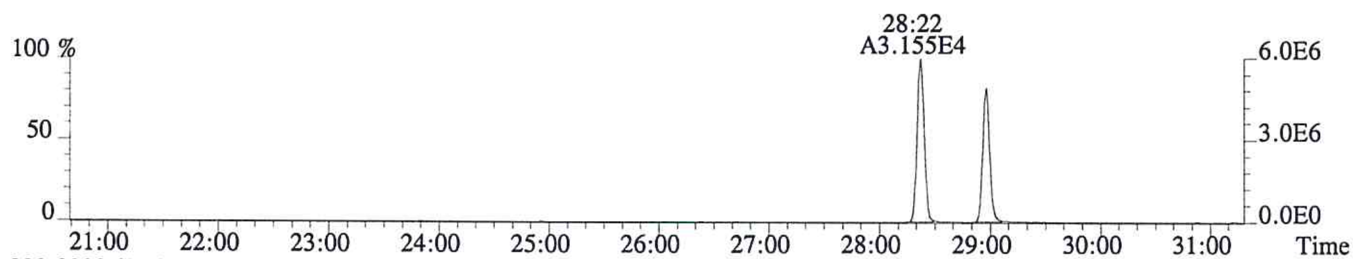
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



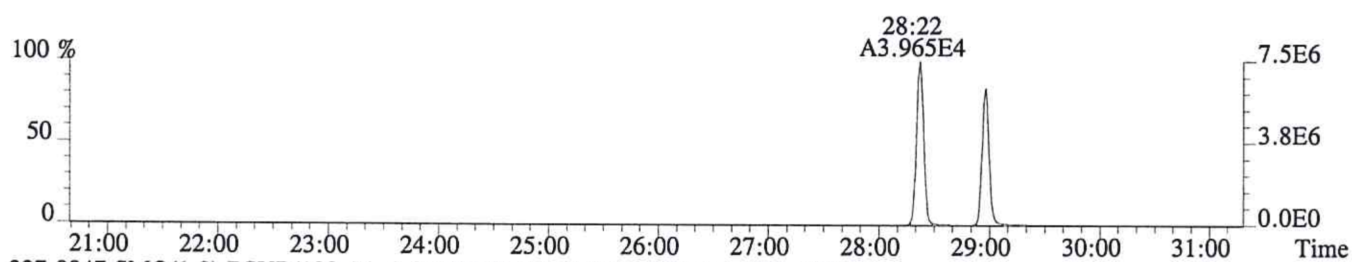
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



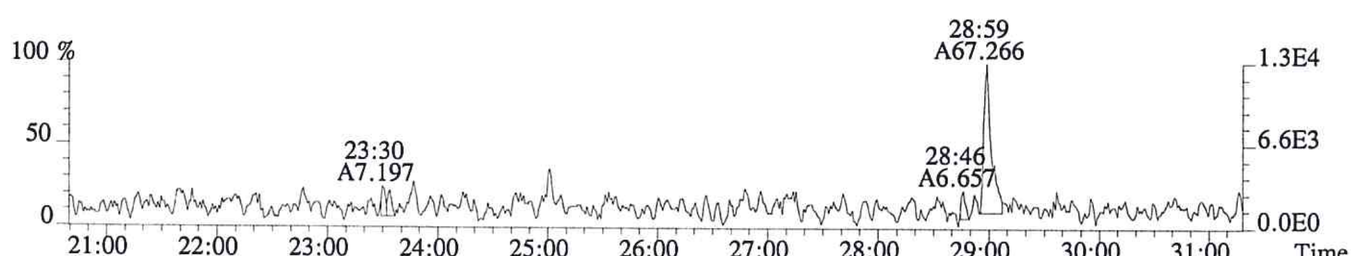
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9060.0,1.00%,F,T)



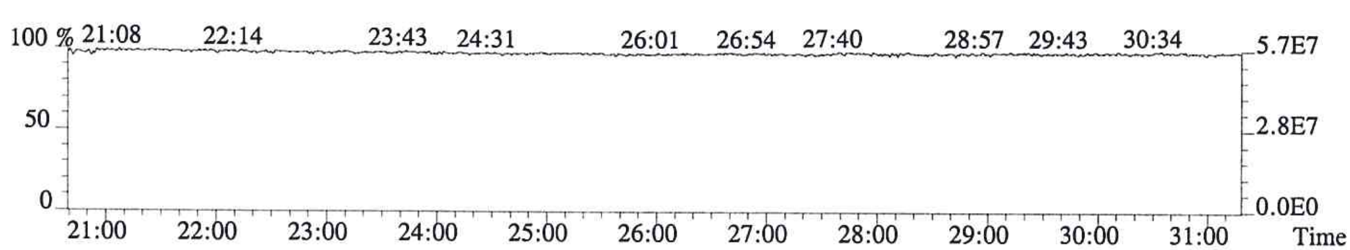
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



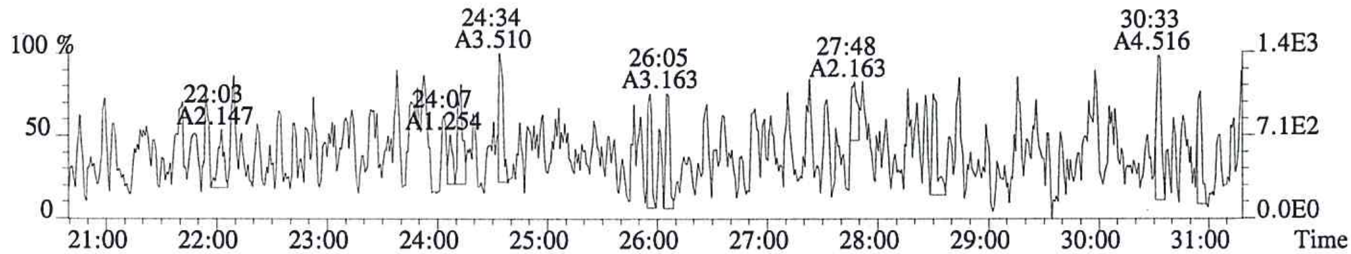
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



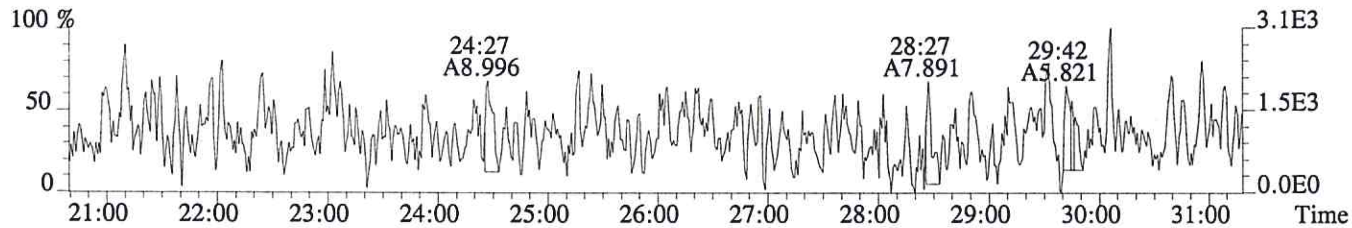
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



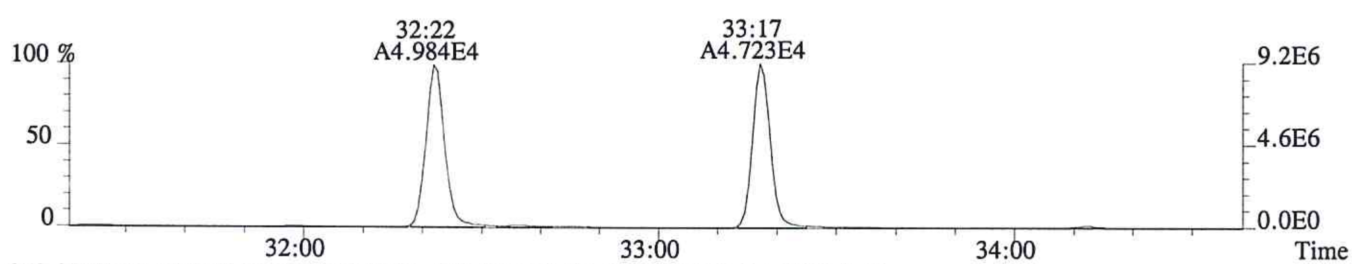
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



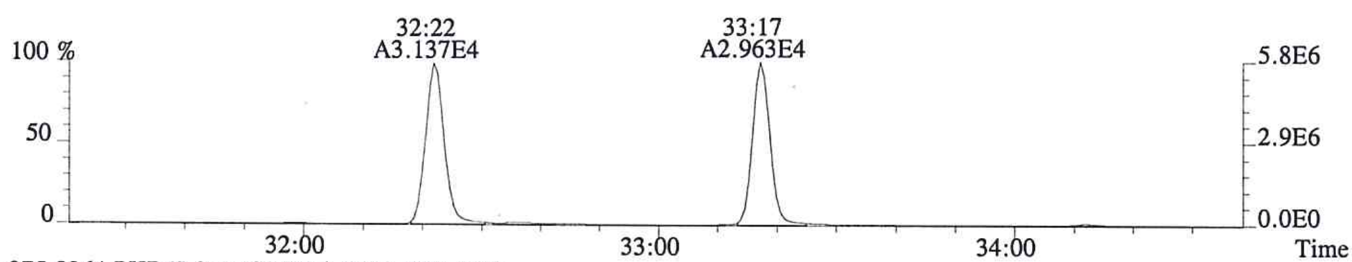
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



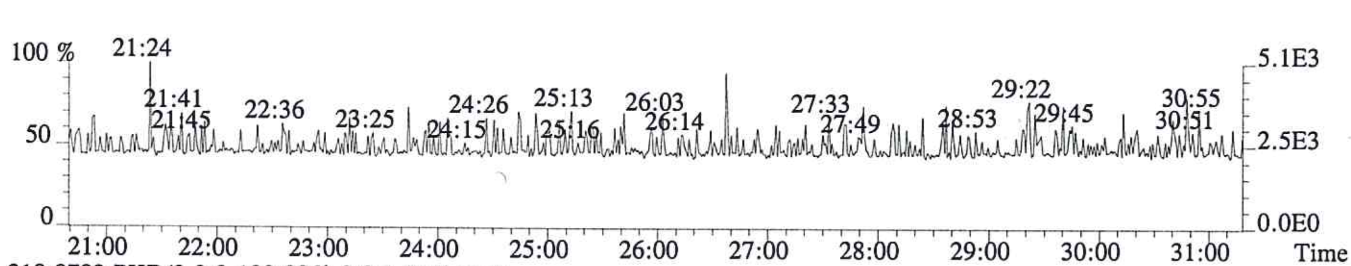
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



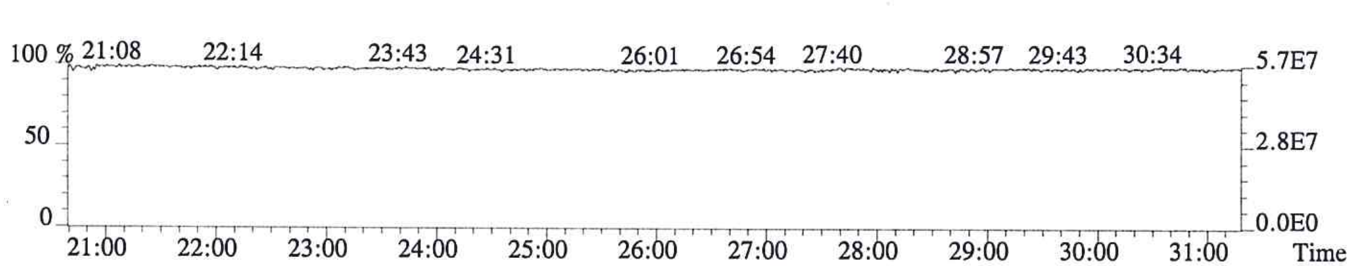
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5956.0,1.00%,F,T)



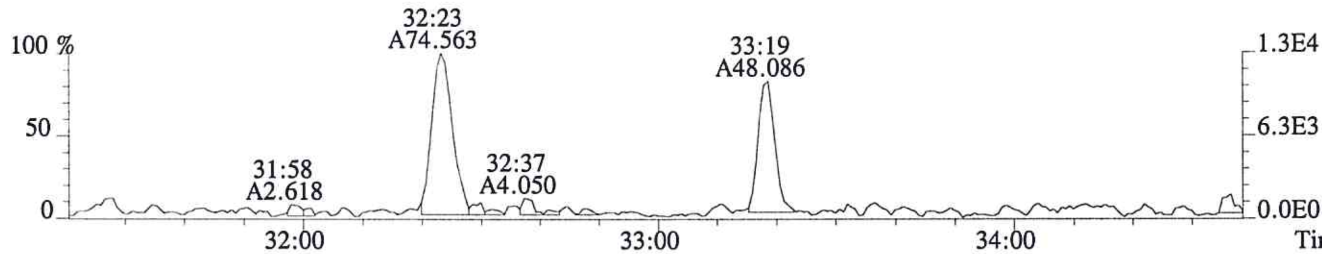
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



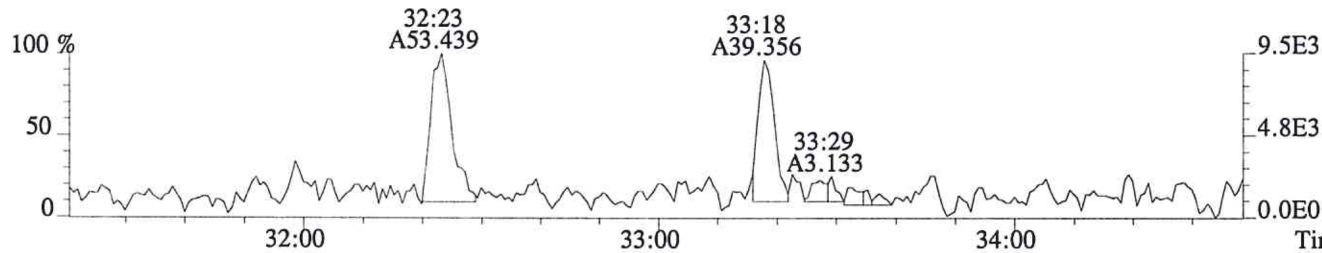
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



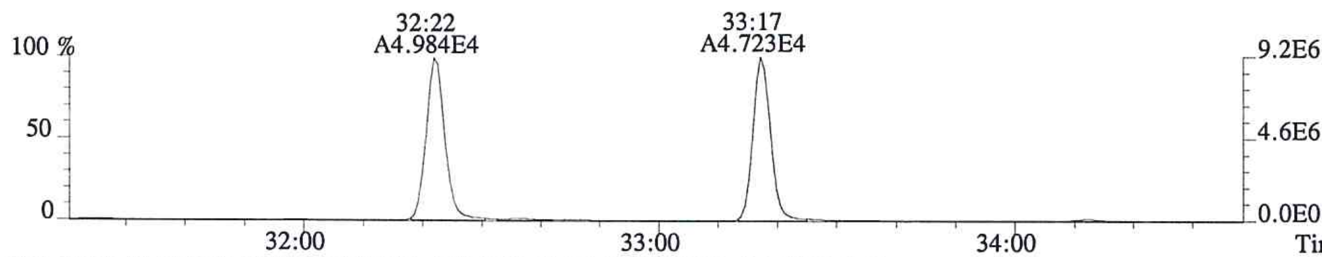
File:P603993 #1-298 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



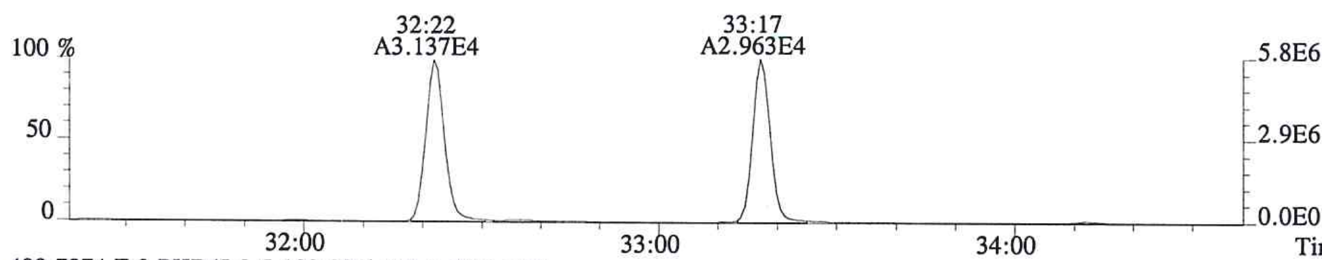
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



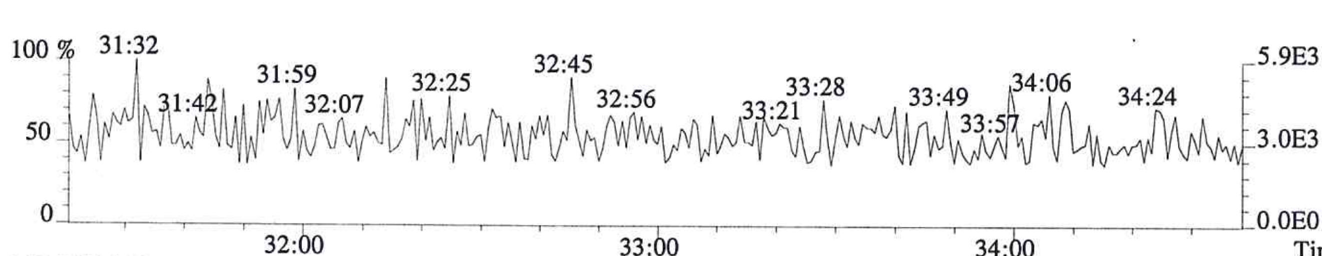
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



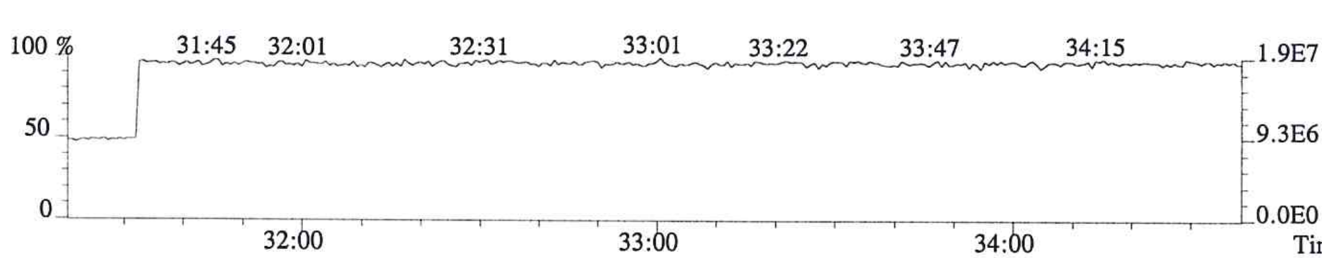
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5956.0,1.00%,F,T)



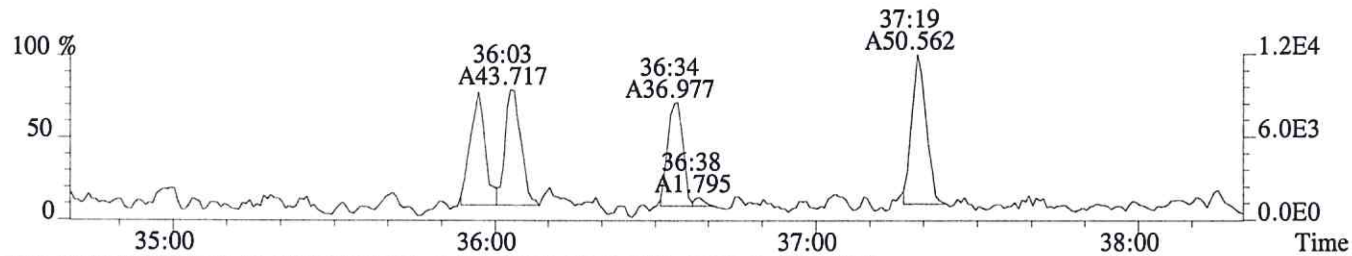
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



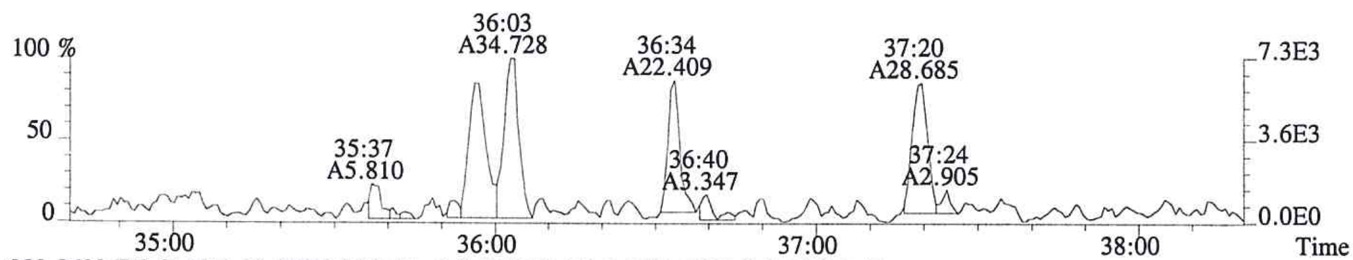
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



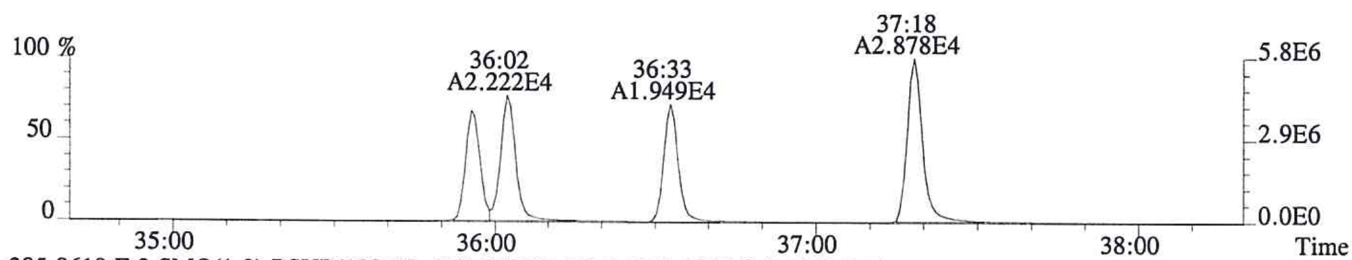
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



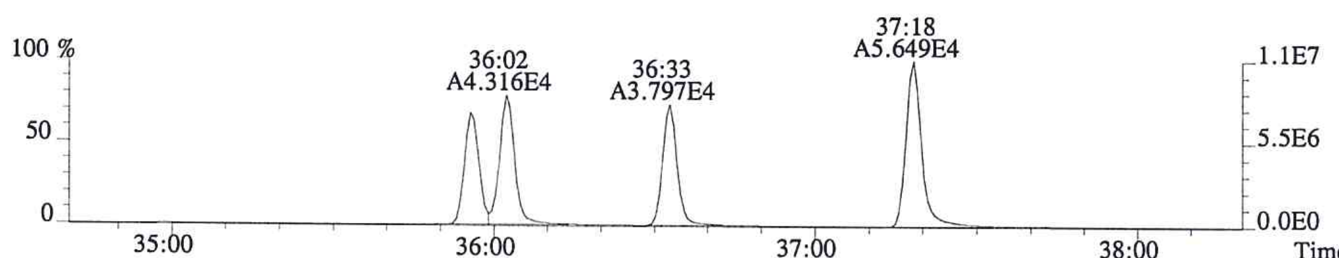
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



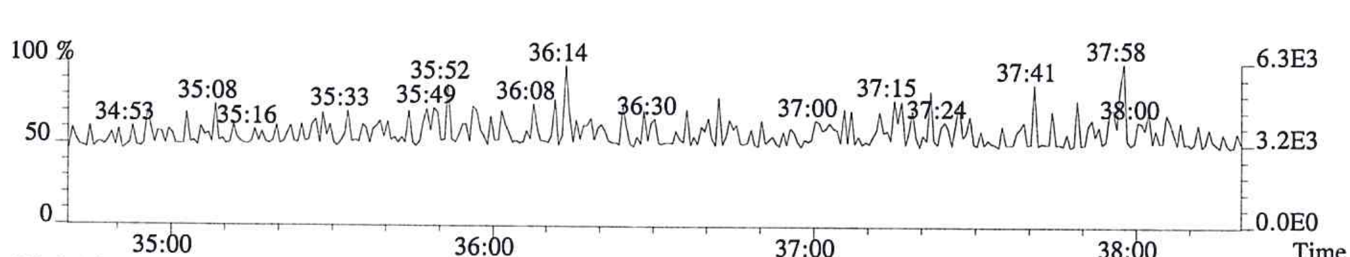
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



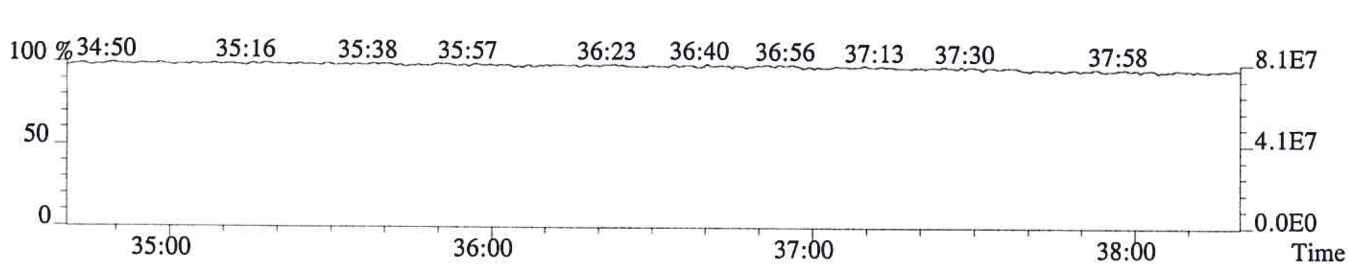
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



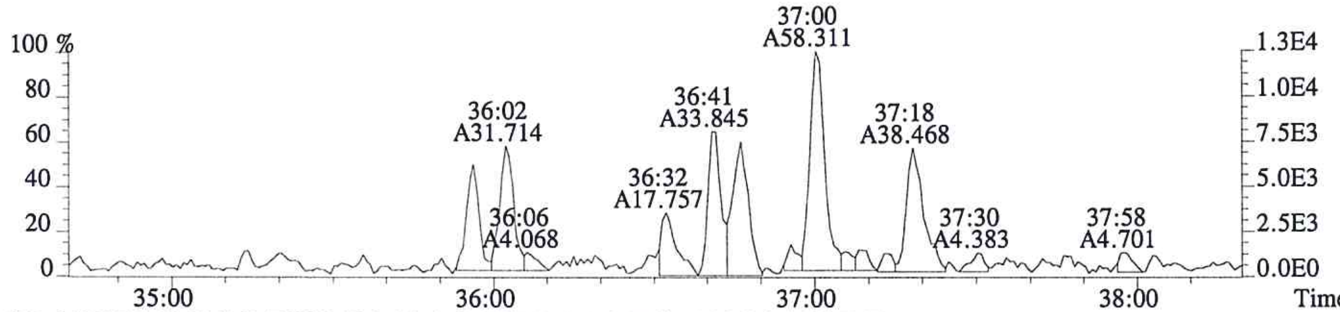
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



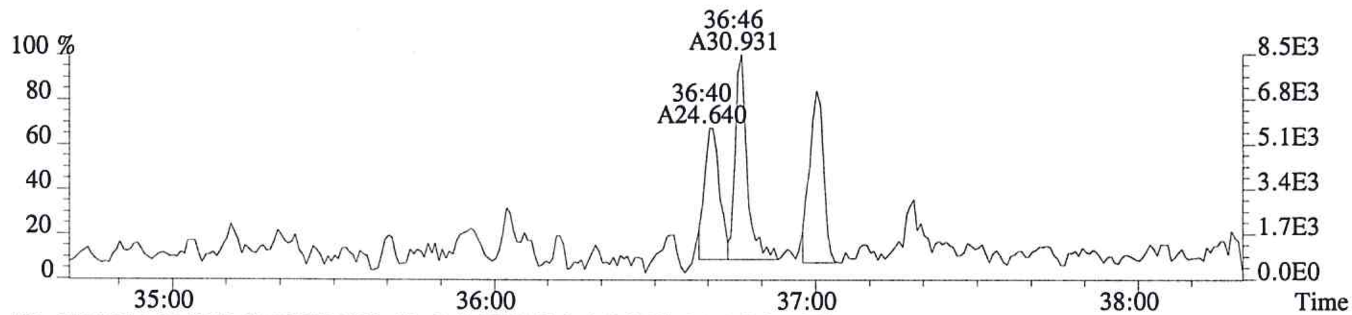
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



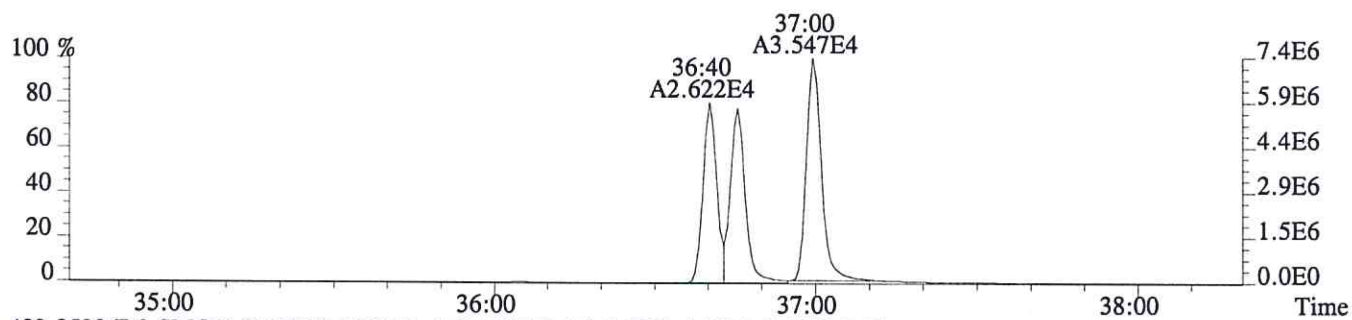
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



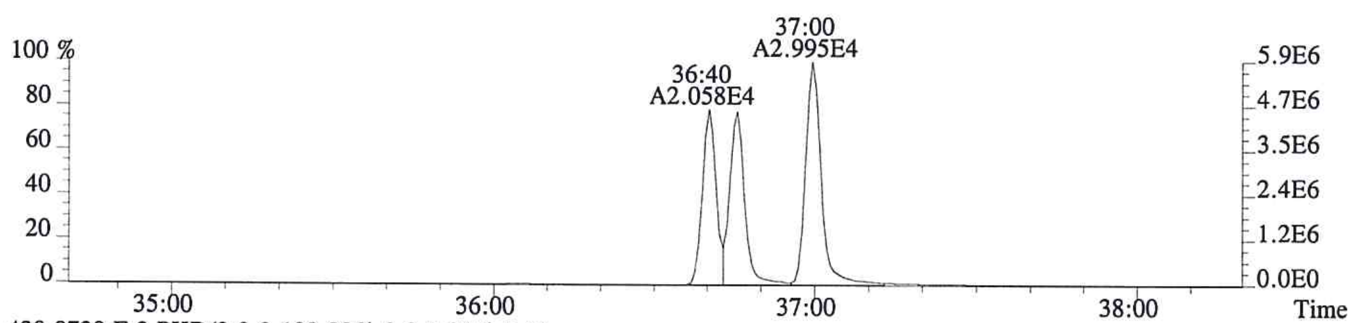
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



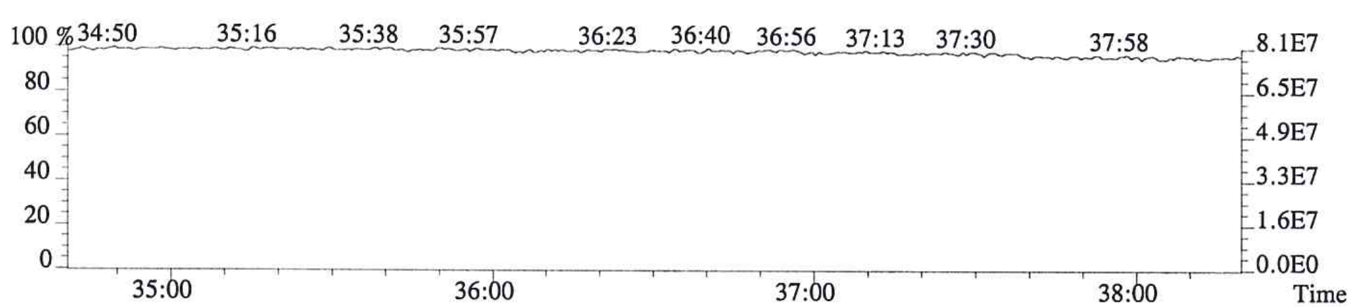
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 Sample ID: EQ1600219-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	2.801e+03	3.660e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.190e+04	1.413e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	2.231e+03	2.891e+03	0.77	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.350e+04	4.172e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.040e+04	3.141e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.698e+04	2.983e+04	1.57	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.332e+04	6.463e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.534e+04	3.171e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.878e+04	3.661e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.503e+04	2.861e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.948e+01				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 LAB. ID: EQ1600219-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.03e+05	7.96e+02	6.3e+02	6.62e+05	2.36e+03	2.8e+02
3	2,3,4,7,8-PeCDF	4.38e+06	2.79e+03	1.6e+03	2.85e+06	2.28e+03	1.2e+03
11	2,3,7,8-TCDD	4.39e+05	1.02e+03	4.3e+02	5.62e+05	1.12e+03	5.0e+02
18	13C-2,3,7,8-TCDF	6.10e+06	3.89e+03	1.6e+03	7.65e+06	2.73e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.44e+06	5.98e+03	1.6e+03	5.84e+06	6.68e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	9.26e+06	5.98e+03	1.5e+03	5.88e+06	6.68e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.74e+06	7.64e+02	8.8e+03	1.29e+07	1.90e+03	6.8e+03
26	13C-1,2,3,4-TCDF	*	3.89e+03	*	*	2.73e+03	*
27	13C-2,3,7,8-TCDD	4.84e+06	7.32e+03	6.6e+02	6.09e+06	2.92e+03	2.1e+03
33	13C-1,2,3,4-TCDD	5.37e+06	7.32e+03	7.3e+02	6.86e+06	2.92e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.54e+06	1.57e+03	4.8e+03	5.95e+06	1.14e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	1.40e+04	1.43e+03	9.8e+00			

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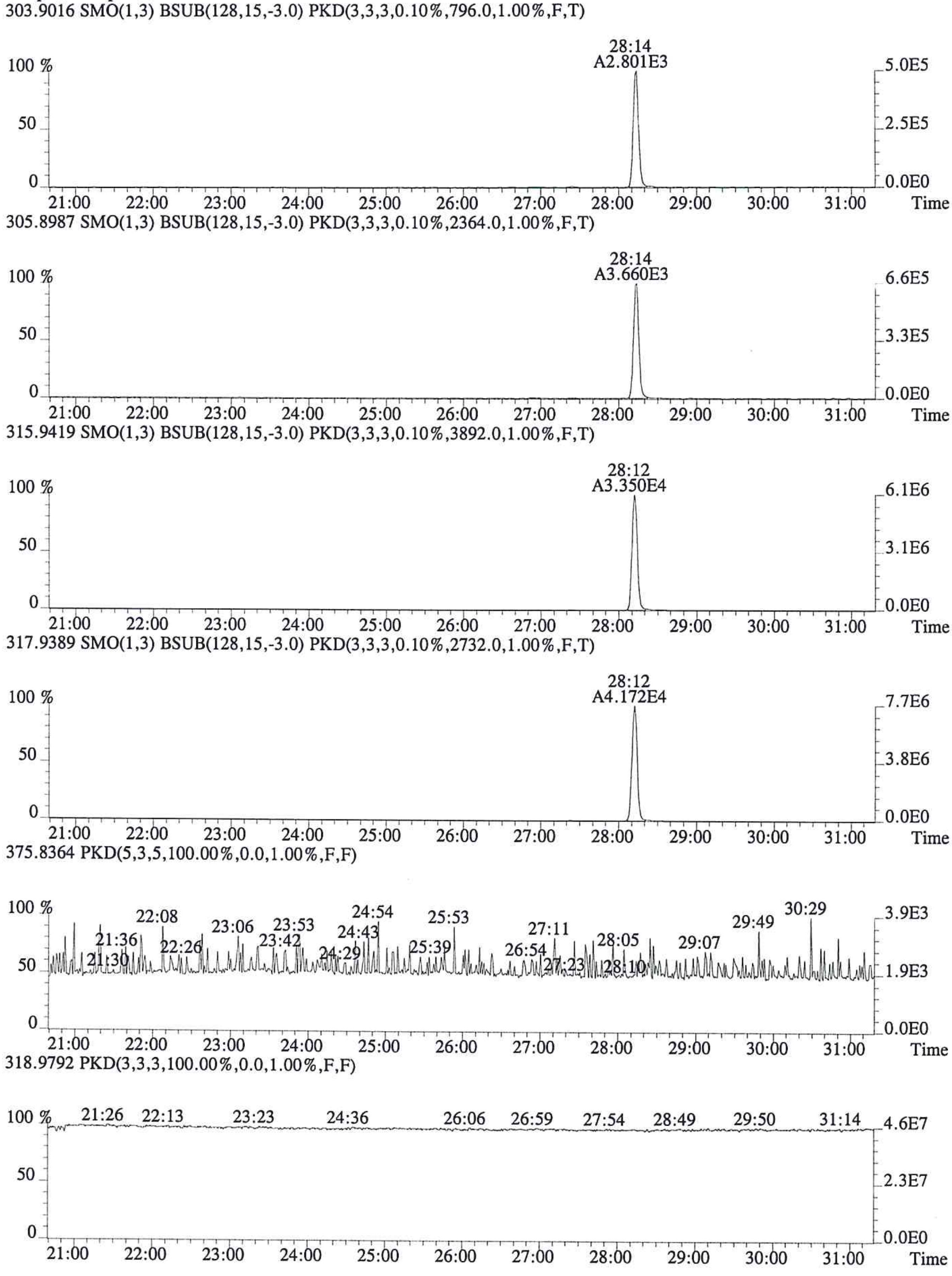
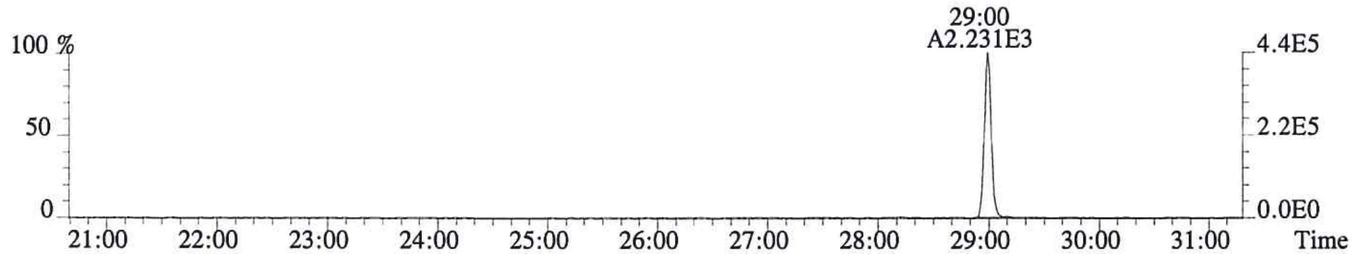
www.alsglobal.com

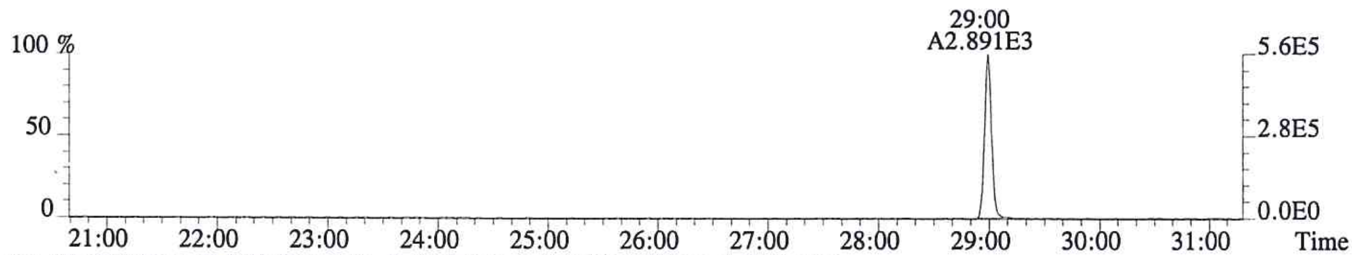
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS



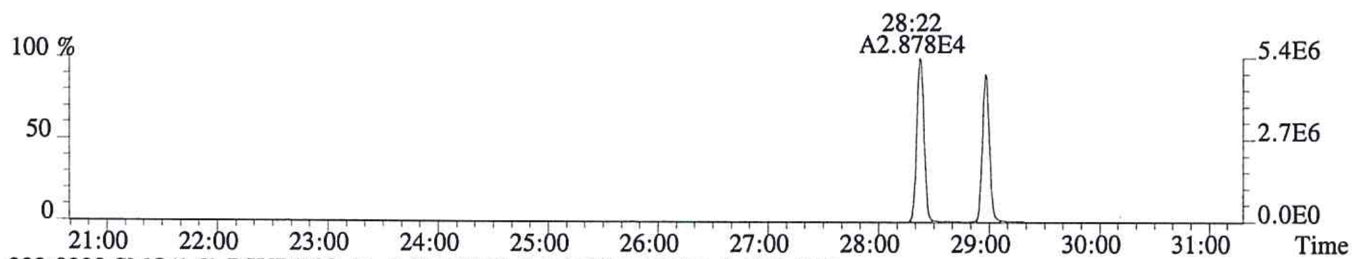
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



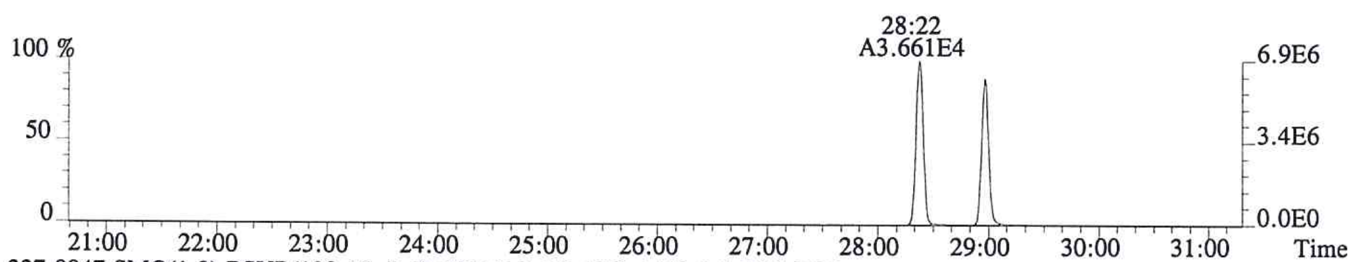
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



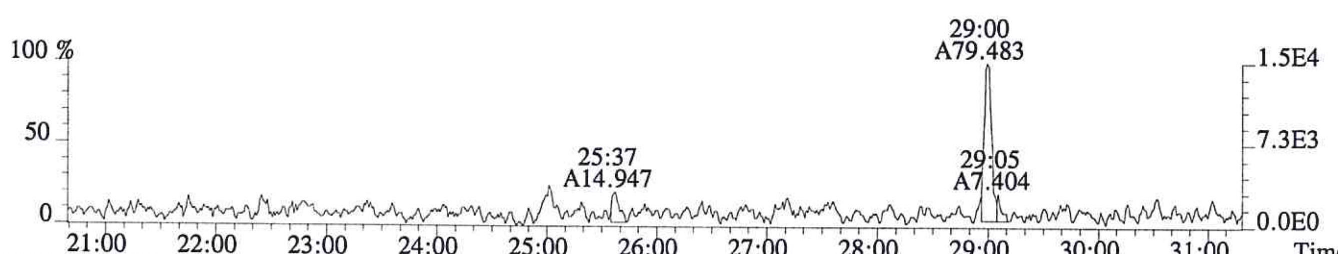
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7316.0,1.00%,F,T)



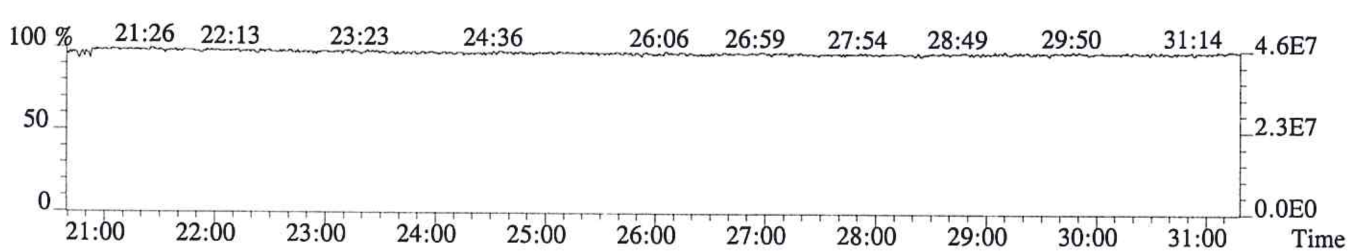
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



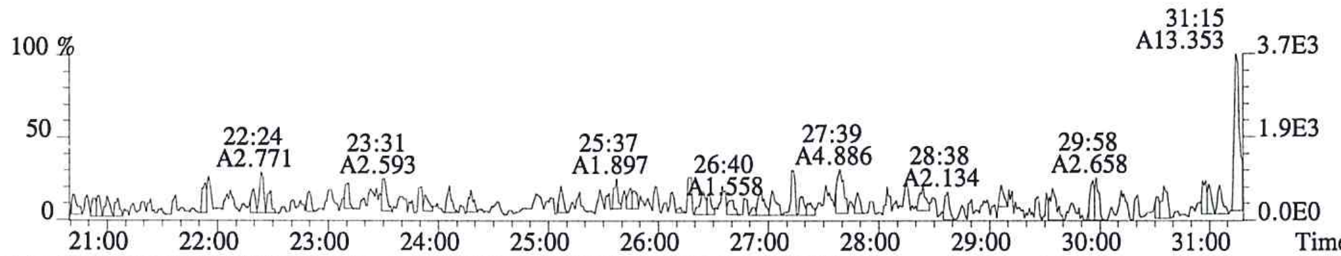
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



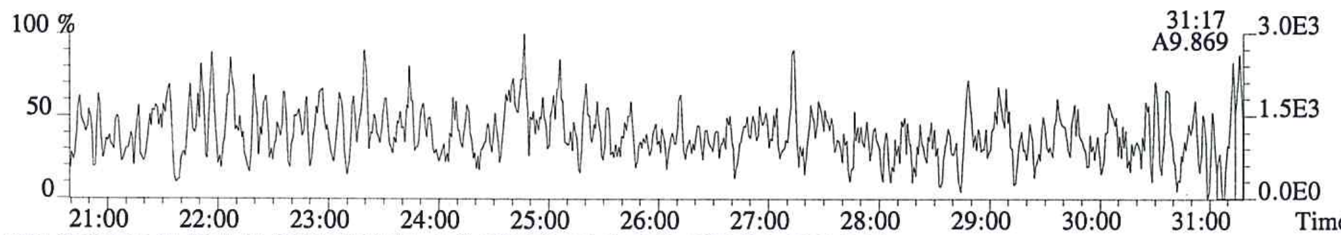
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



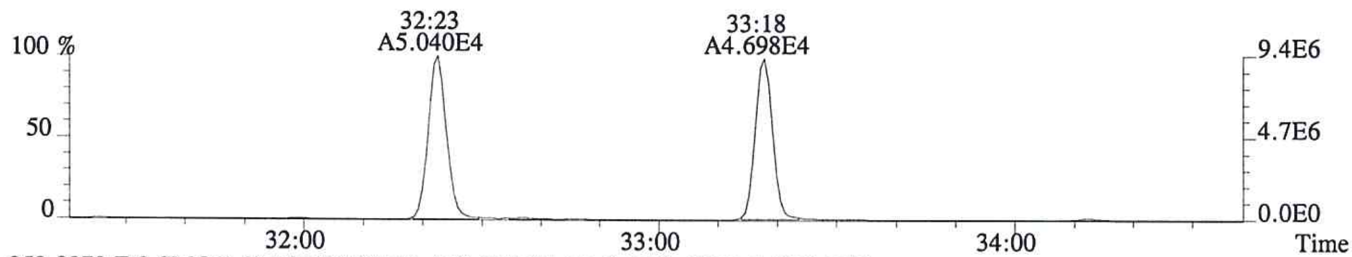
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



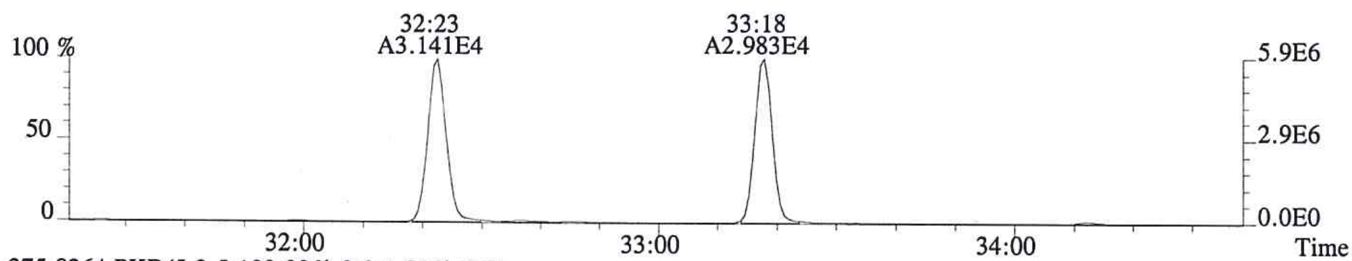
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



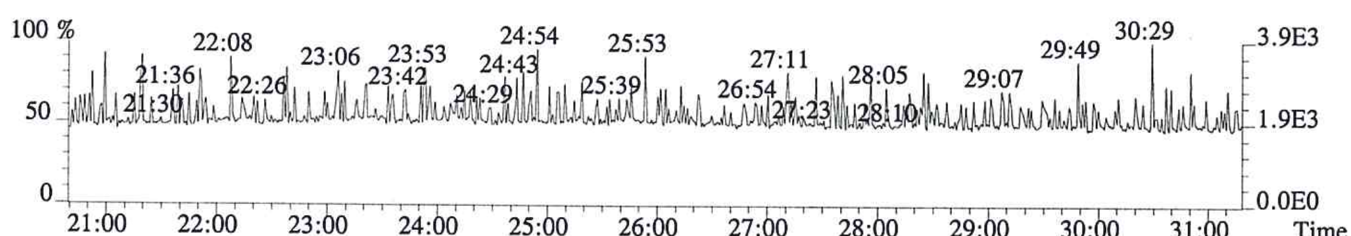
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



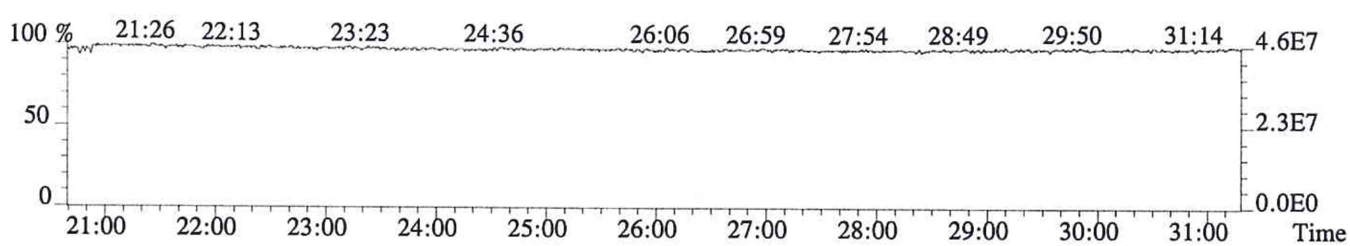
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

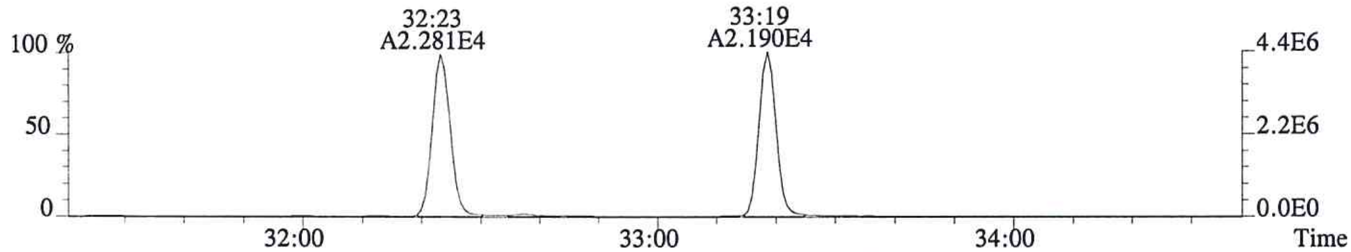


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

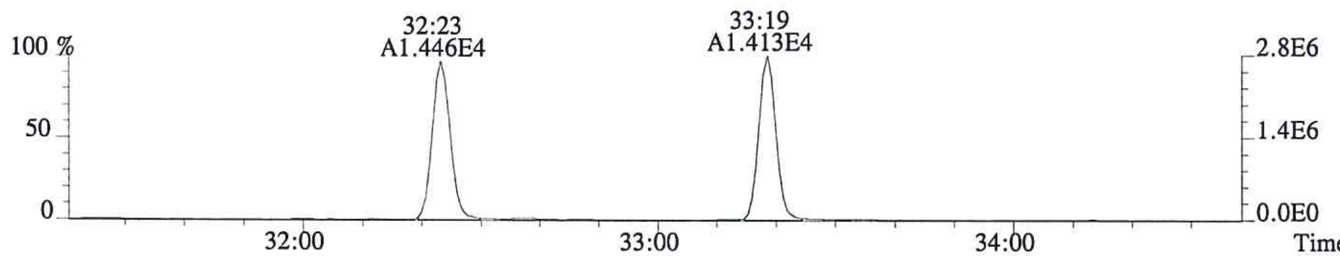


File:P604002 #1-298 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

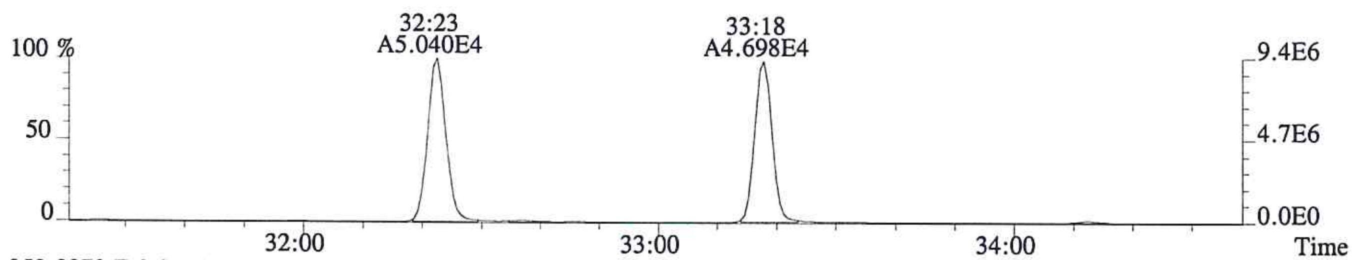
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2792.0,1.00%,F,T)



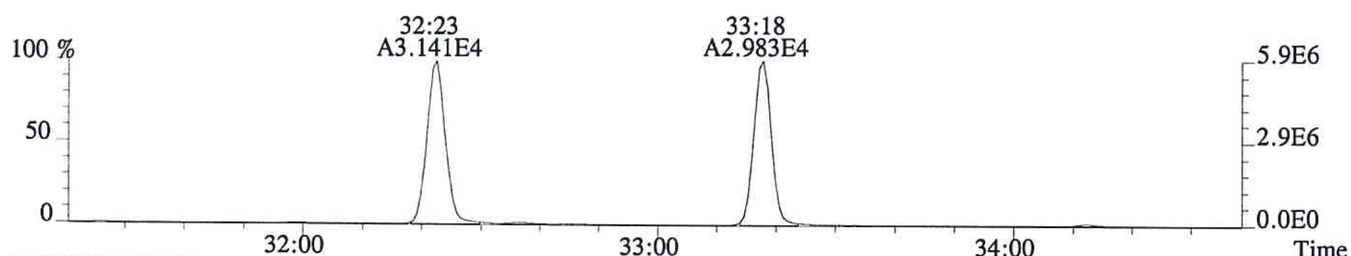
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



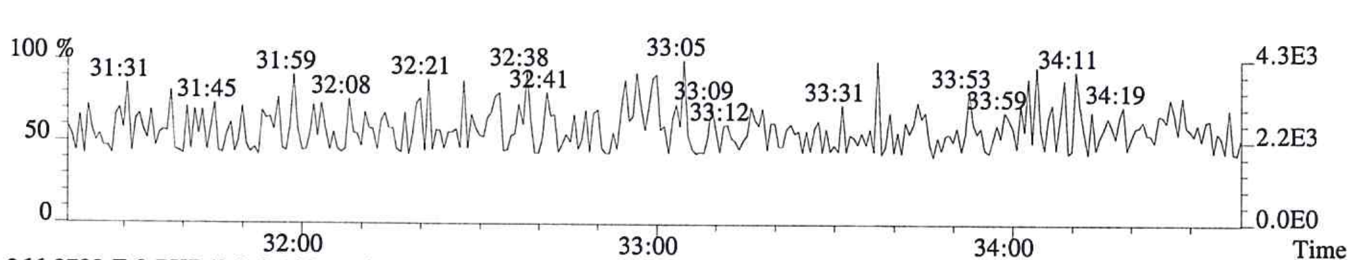
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



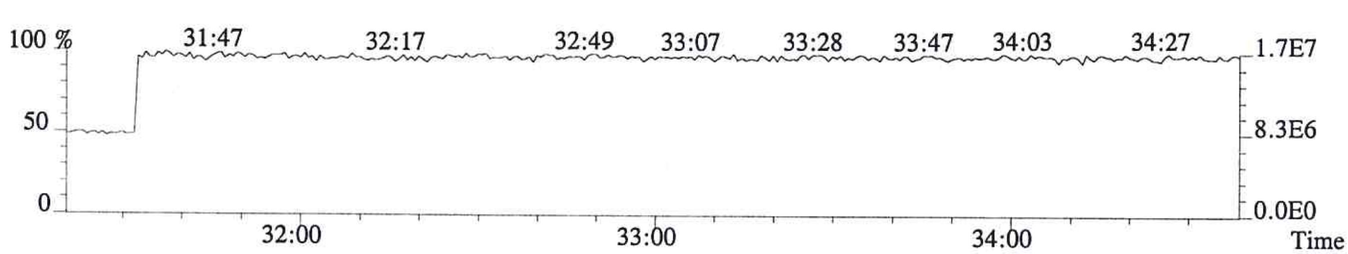
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



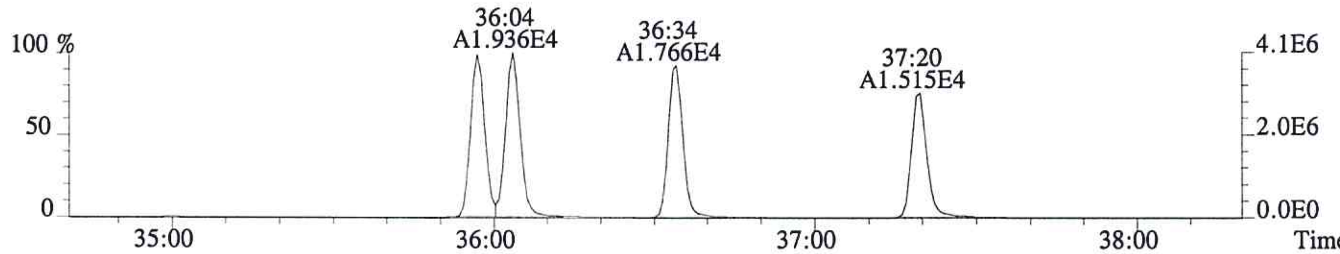
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



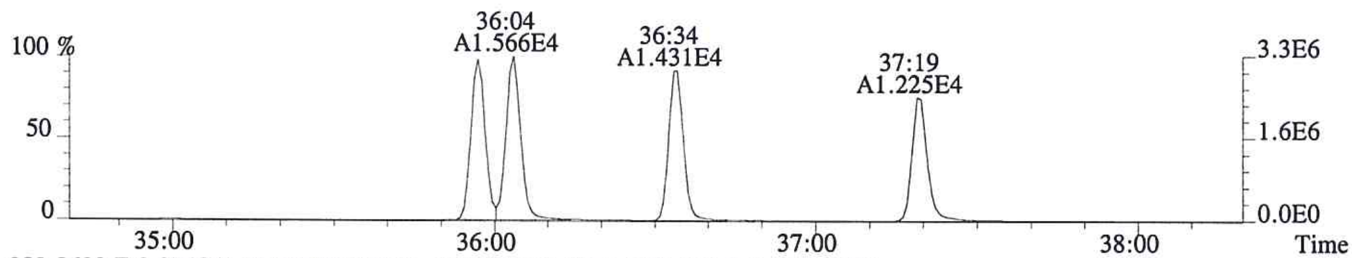
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



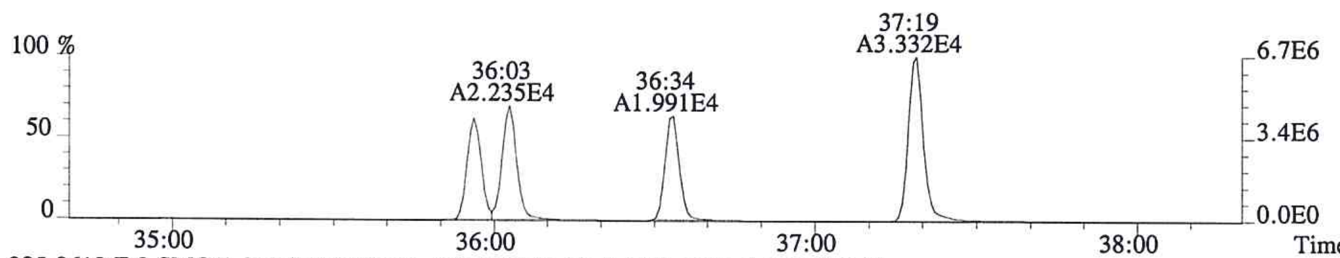
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



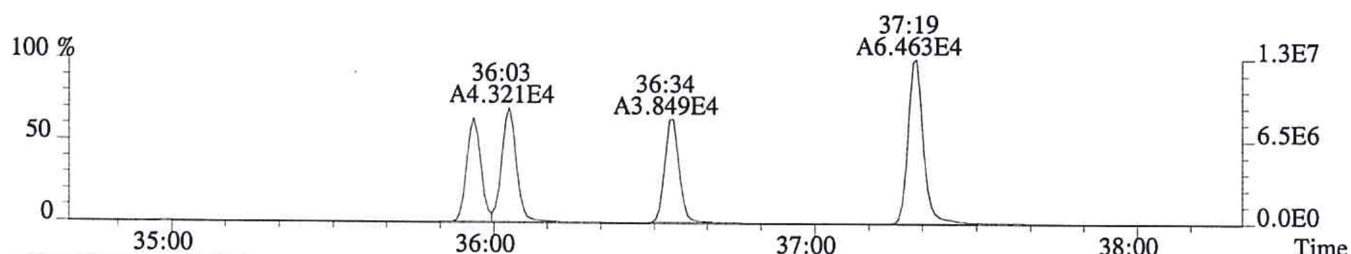
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



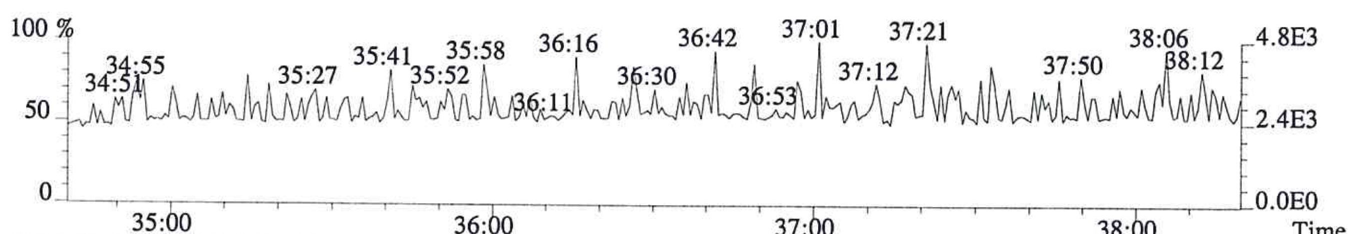
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



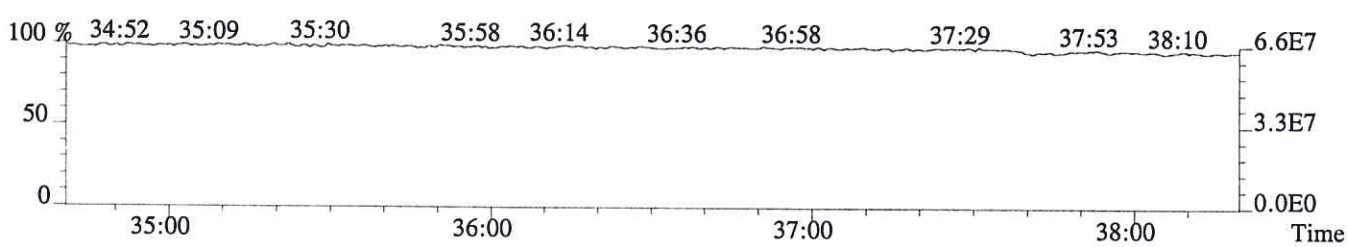
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



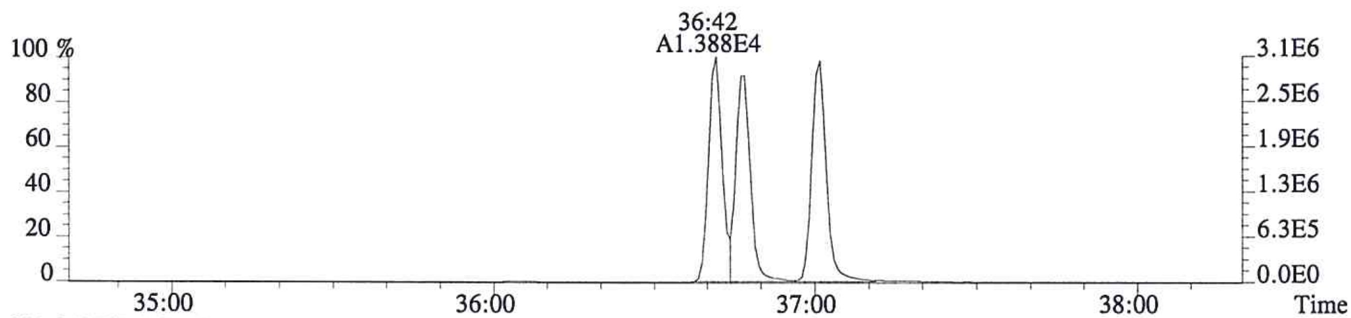
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



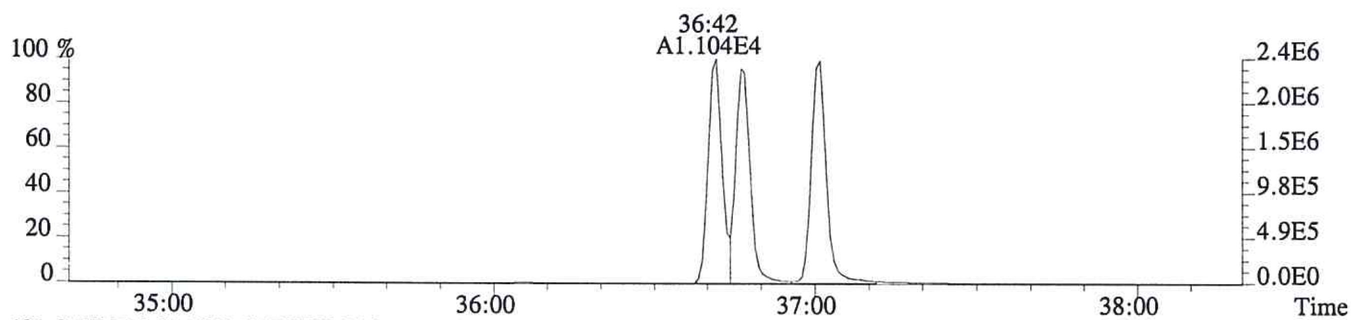
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



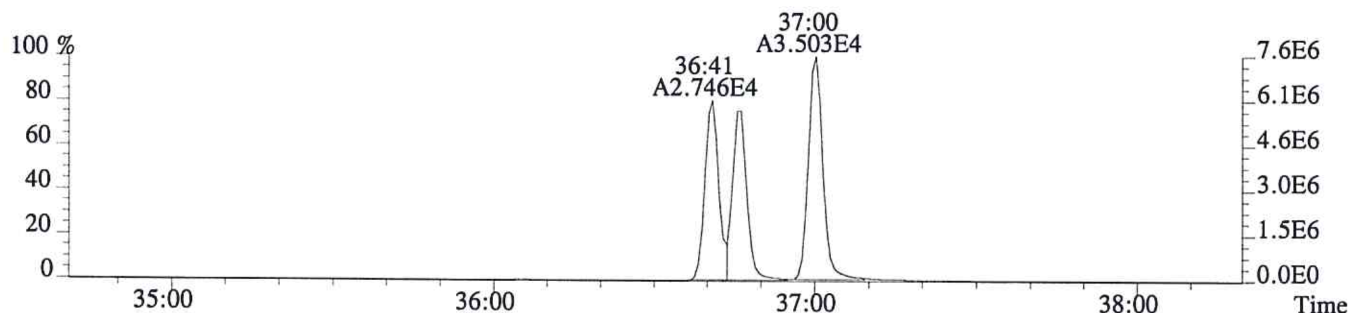
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



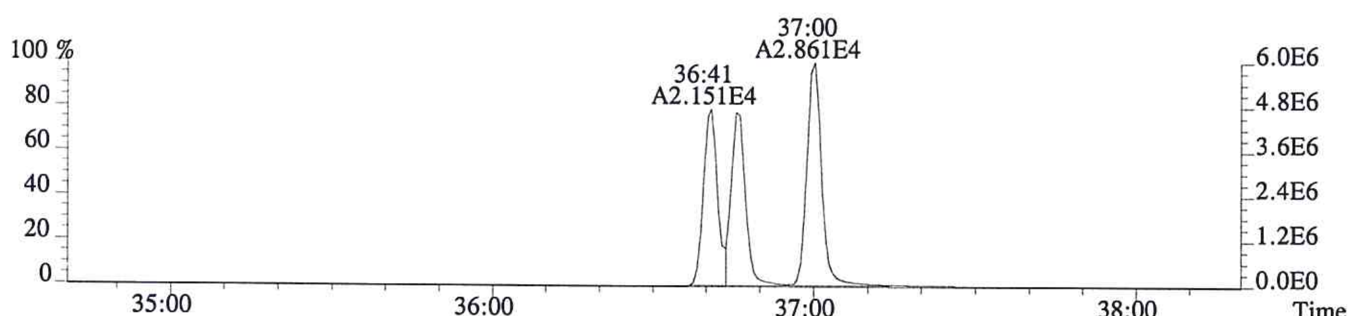
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



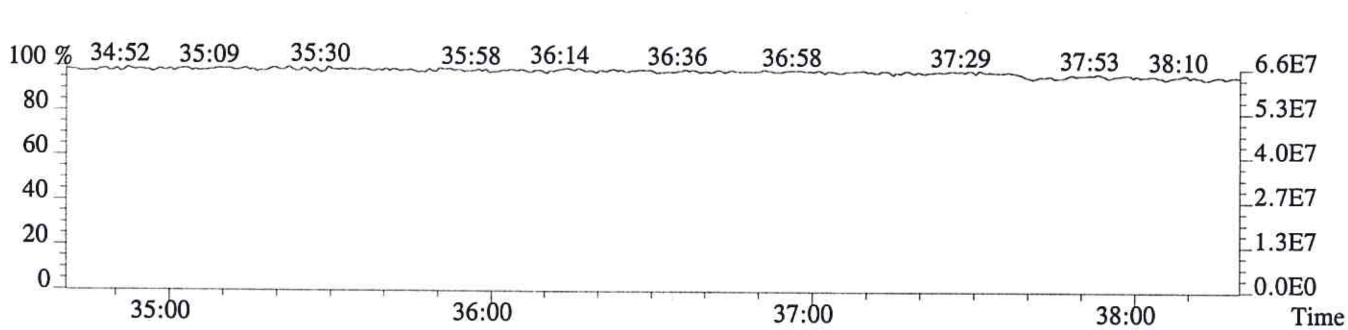
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 Sample ID: EQ1600219-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	2.475e+02	3.295e+02	0.75	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.105e+03	1.300e+03	1.62	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.781e+02	2.430e+02	0.73	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	2.865e+03	3.441e+03	0.83	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	4.842e+03	3.037e+03	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.611e+03	2.925e+03	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.533e+03	6.873e+03	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:59	2.121e+03	2.640e+03	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	2.977e+03	3.759e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.340e+03	3.498e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	NotFnd	*				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 LAB. ID: EQ1600219-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.11e+04	9.20e+02	4.5e+01	5.51e+04	1.65e+03	3.3e+01
3	2,3,4,7,8-PeCDF	3.91e+05	9.84e+02	4.0e+02	2.43e+05	1.37e+03	1.8e+02
11	2,3,7,8-TCDD	3.31e+04	1.12e+03	3.0e+01	4.21e+04	1.22e+03	3.5e+01
18	13C-2,3,7,8-TCDF	4.66e+05	4.36e+03	1.1e+02	5.65e+05	2.14e+03	2.6e+02
19	13C-1,2,3,7,8-PeCDF	8.43e+05	9.84e+02	8.6e+02	5.24e+05	1.04e+03	5.1e+02
20	13C-2,3,4,7,8-PeCDF	8.61e+05	9.84e+02	8.8e+02	5.53e+05	1.04e+03	5.3e+02
24	13C-1,2,3,7,8,9-HxCDF	6.91e+05	6.84e+02	1.0e+03	1.32e+06	1.64e+03	8.1e+02
26	13C-1,2,3,4-TCDF	*	4.36e+03	*	*	2.14e+03	*
27	13C-2,3,7,8-TCDD	3.73e+05	6.87e+03	5.4e+01	4.77e+05	3.12e+03	1.5e+02
33	13C-1,2,3,4-TCDD	5.41e+05	6.87e+03	7.9e+01	6.72e+05	3.12e+03	2.2e+02
34	13C-1,2,3,7,8,9-HxCDD	8.67e+05	1.60e+03	5.4e+02	7.17e+05	1.18e+03	6.1e+02
35	37Cl-2,3,7,8-TCDD	*	1.58e+03	*			

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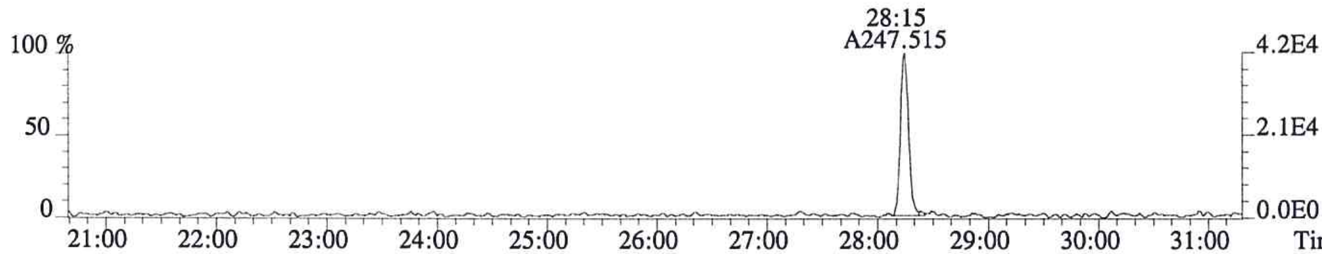
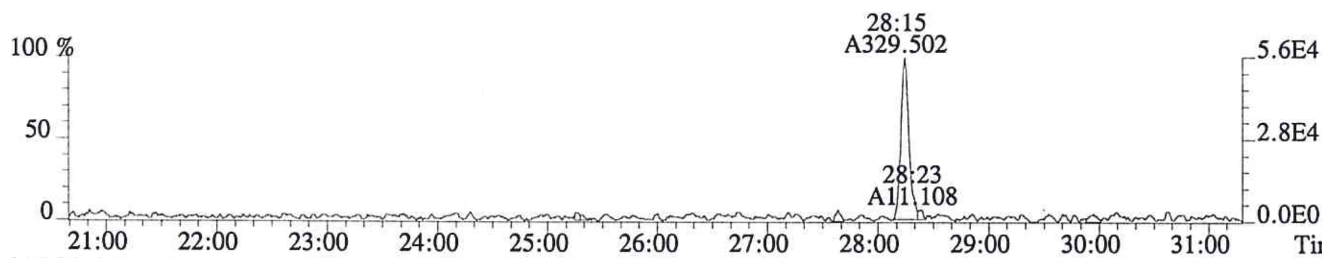
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

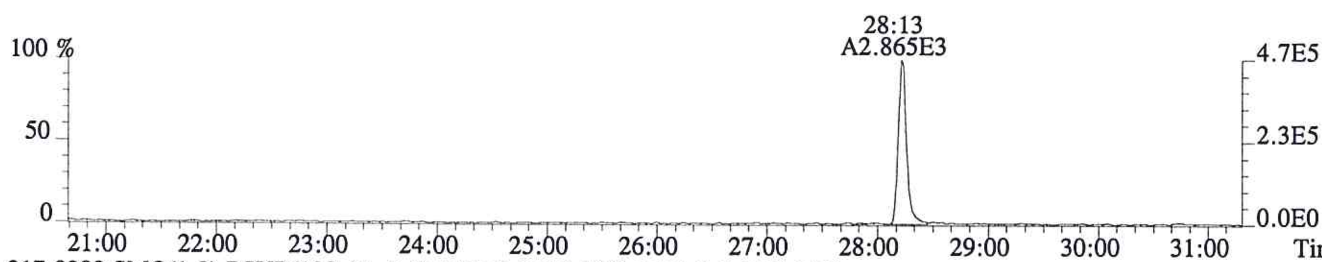
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



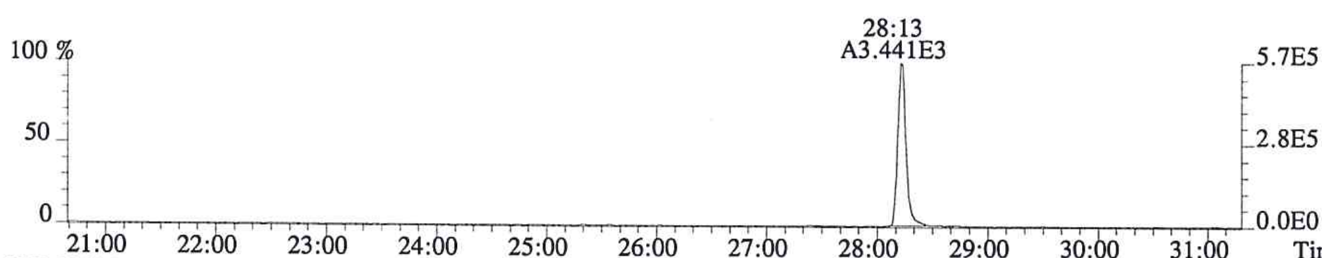
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



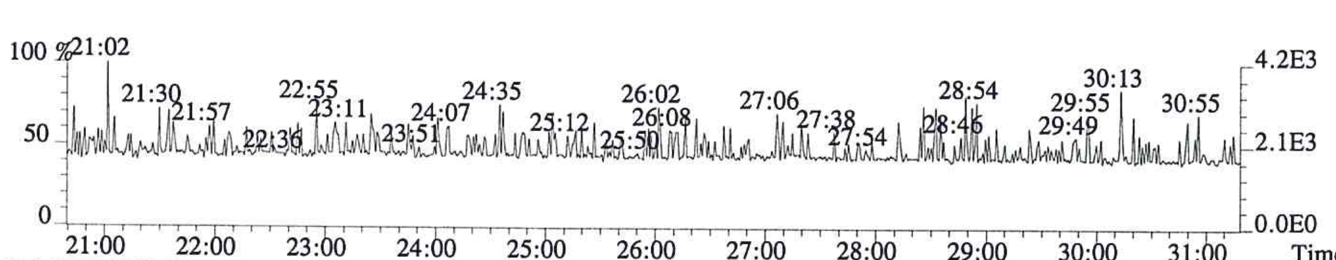
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4356.0,1.00%,F,T)



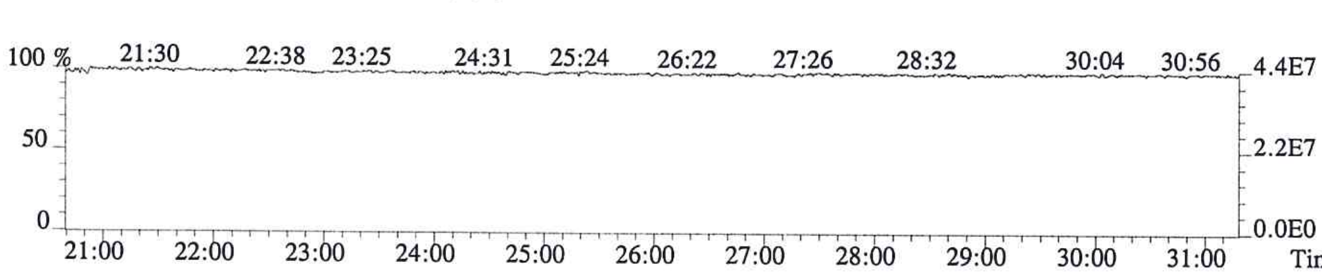
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



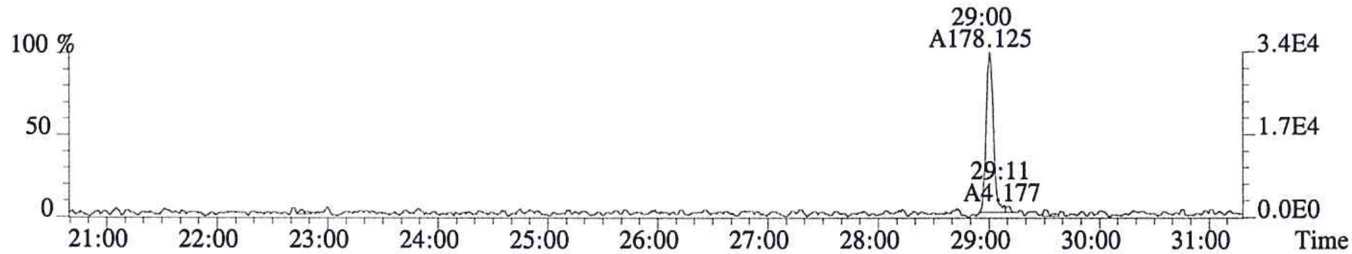
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



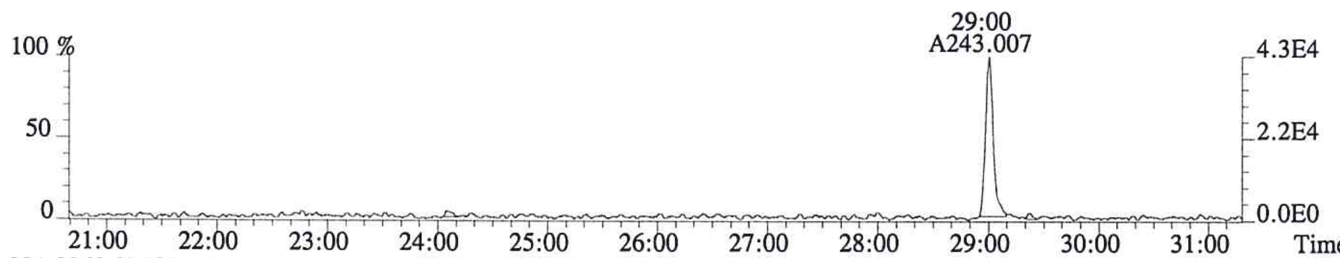
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



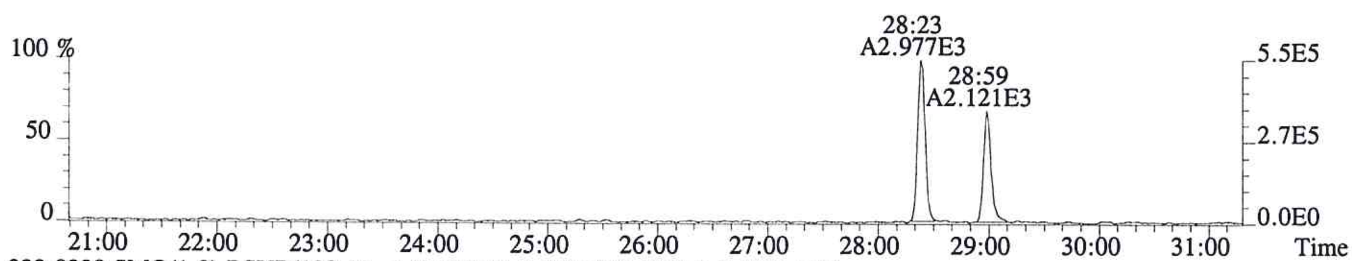
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



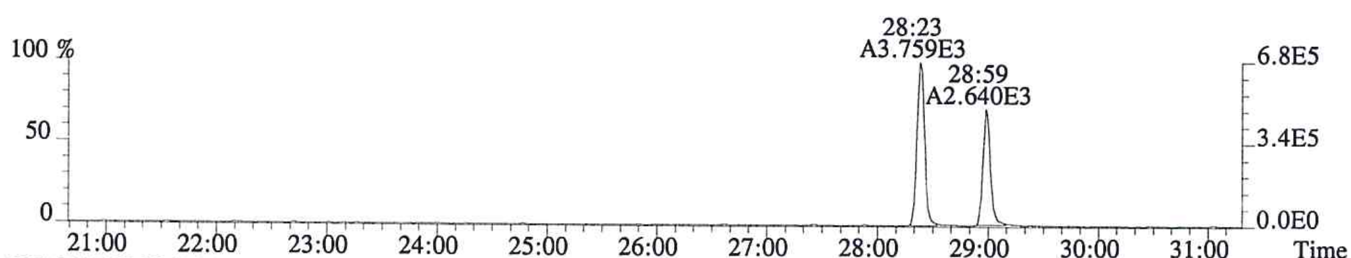
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



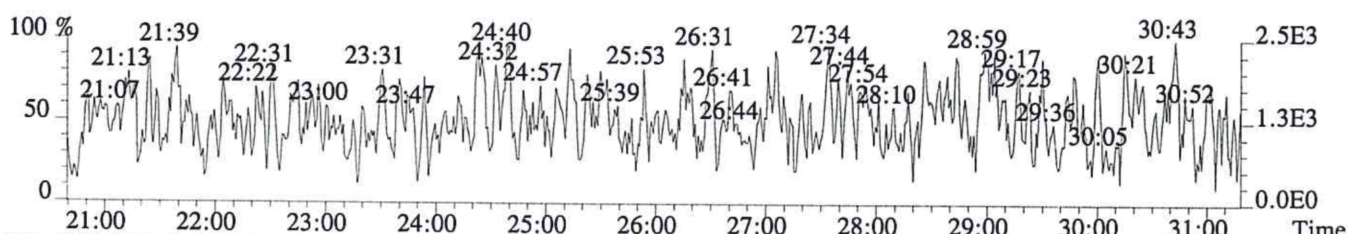
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6868.0,1.00%,F,T)



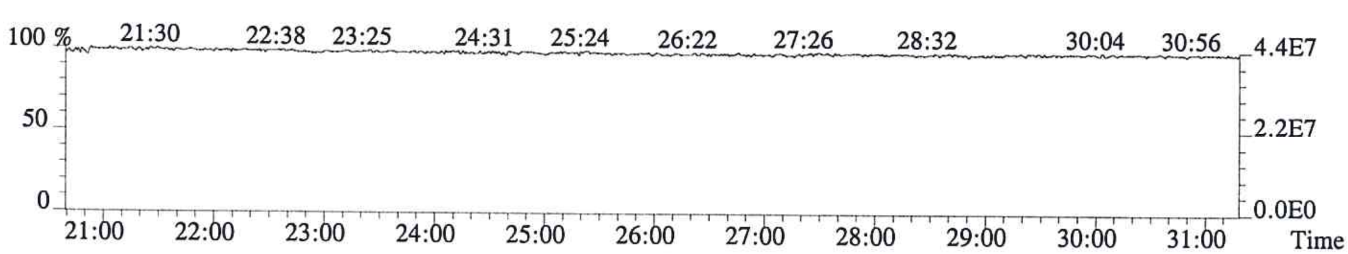
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



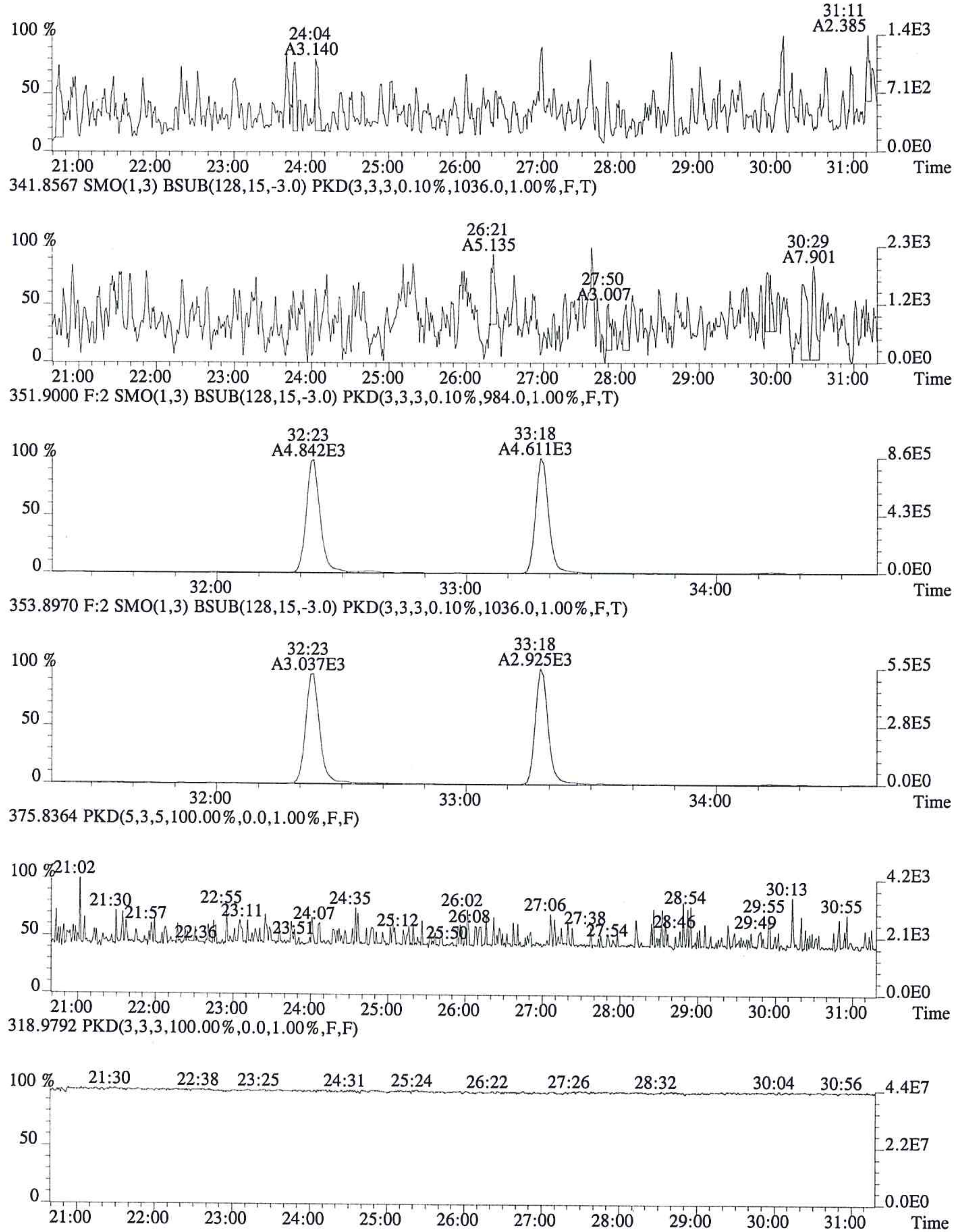
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



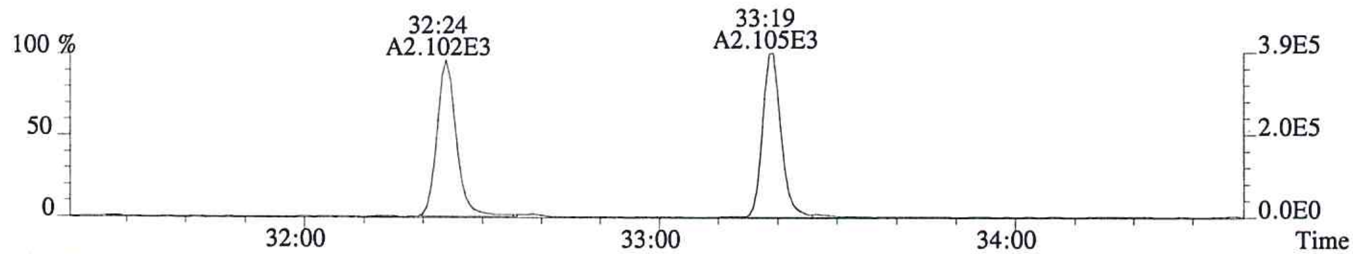
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



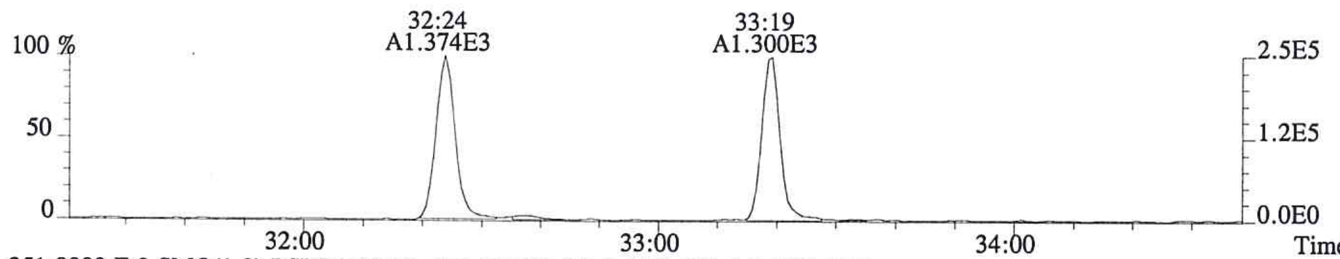
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



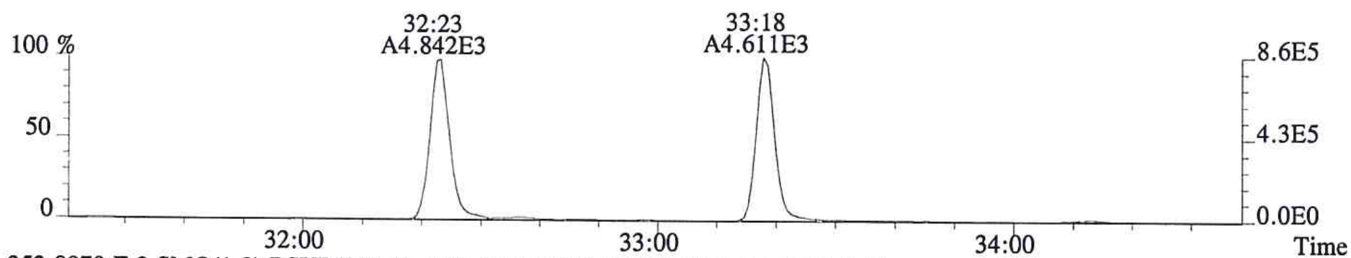
File:P604003 #1-298 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



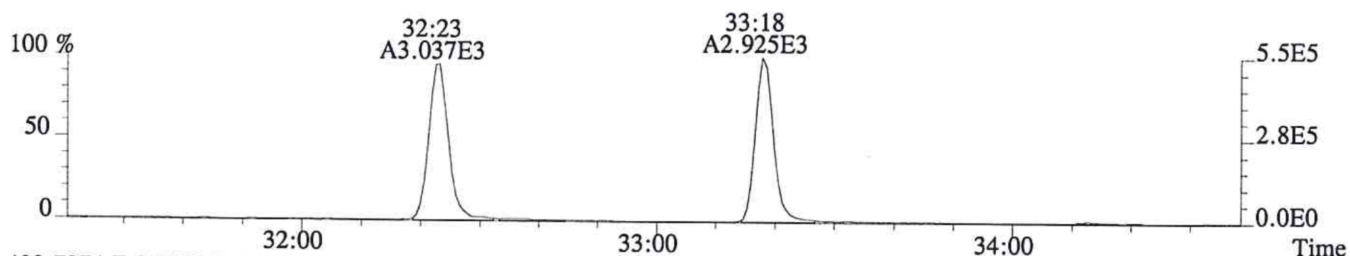
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



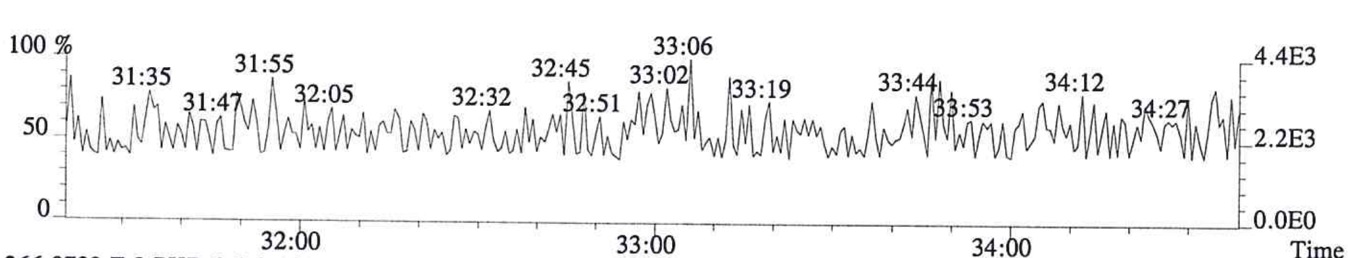
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



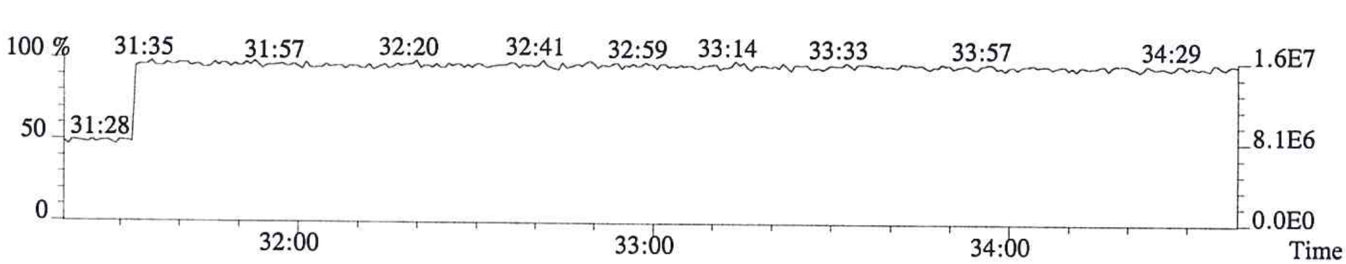
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



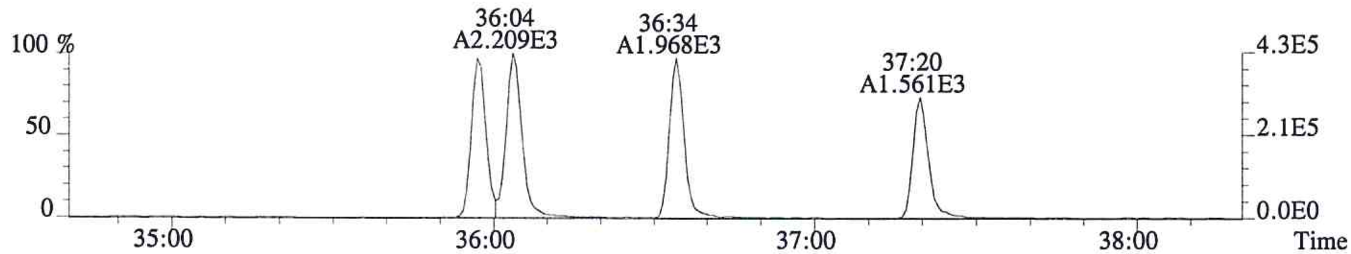
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



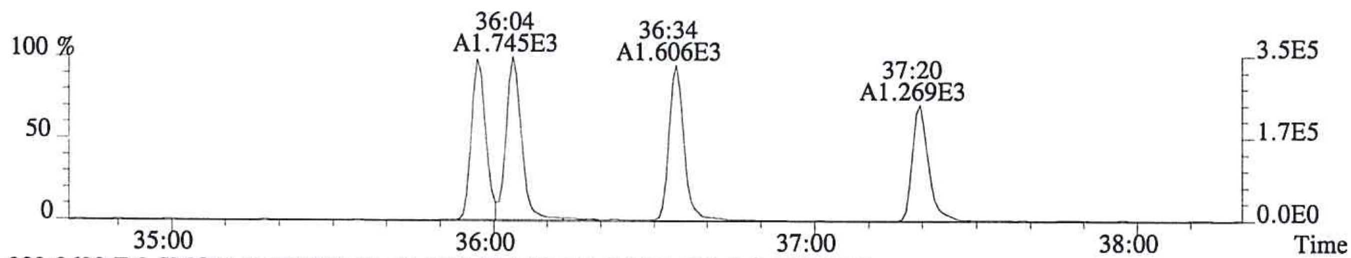
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



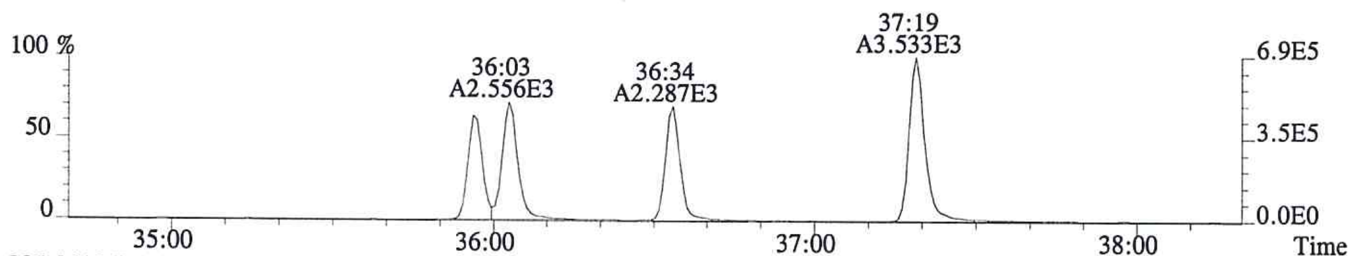
File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



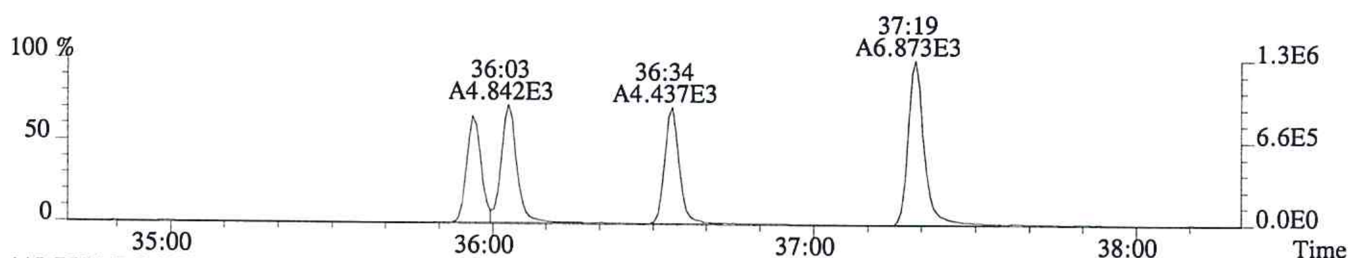
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



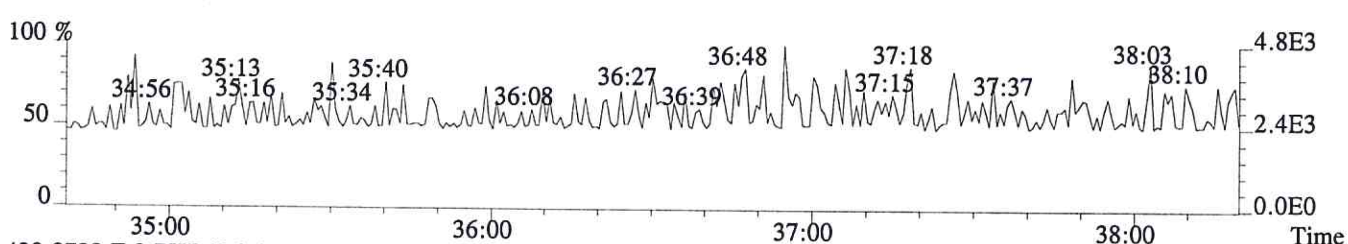
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



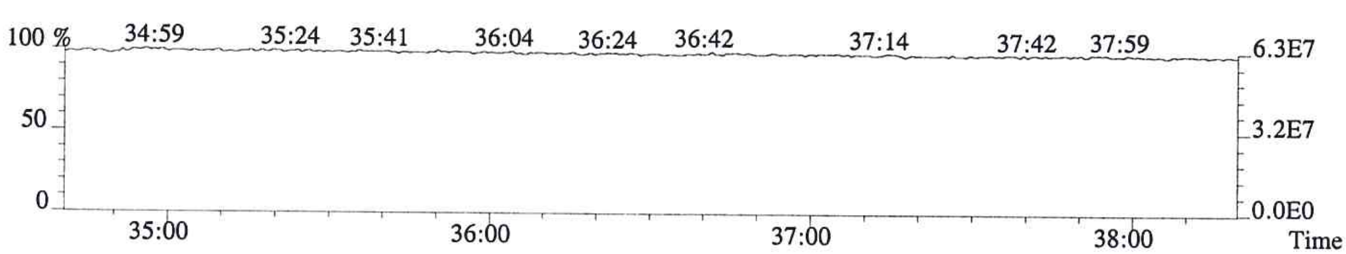
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



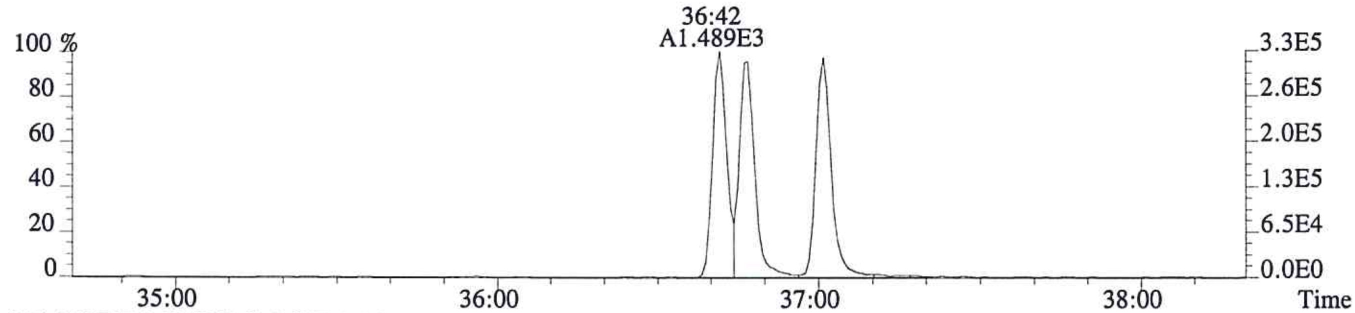
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



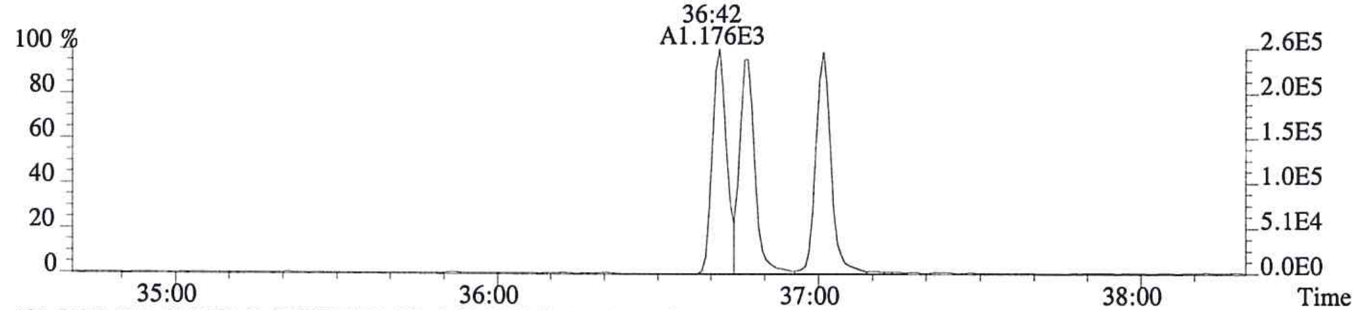
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



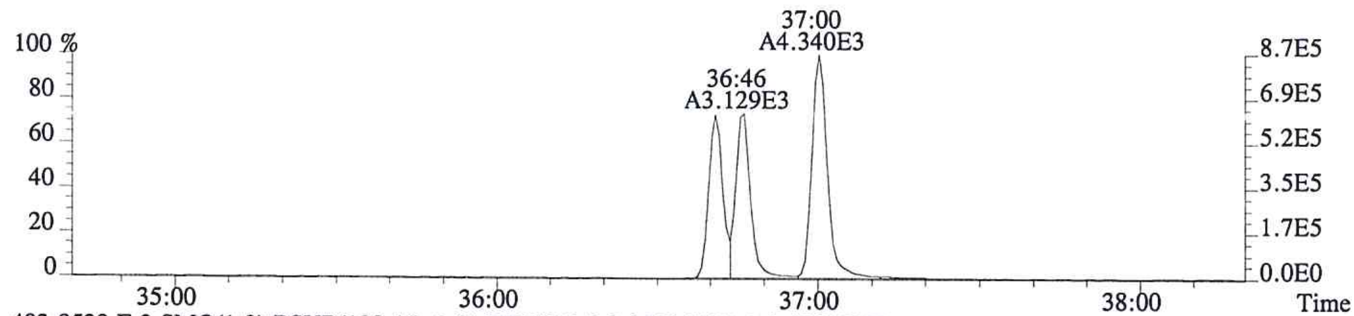
File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



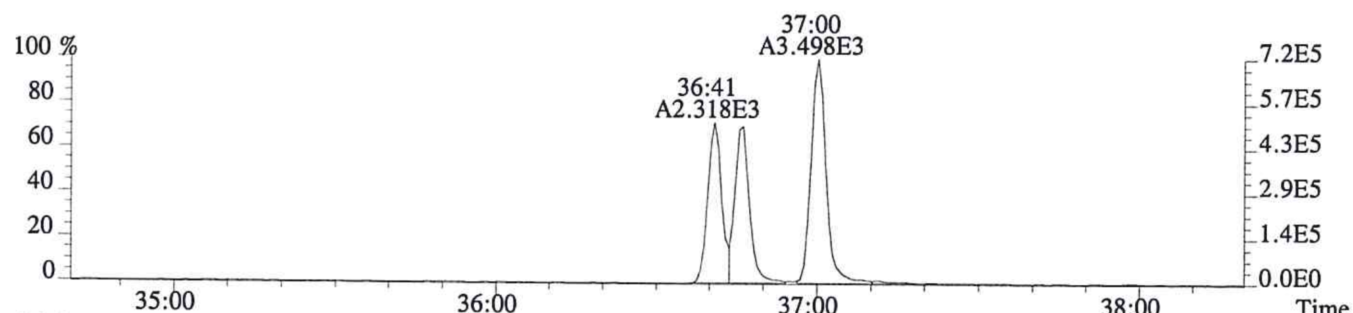
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



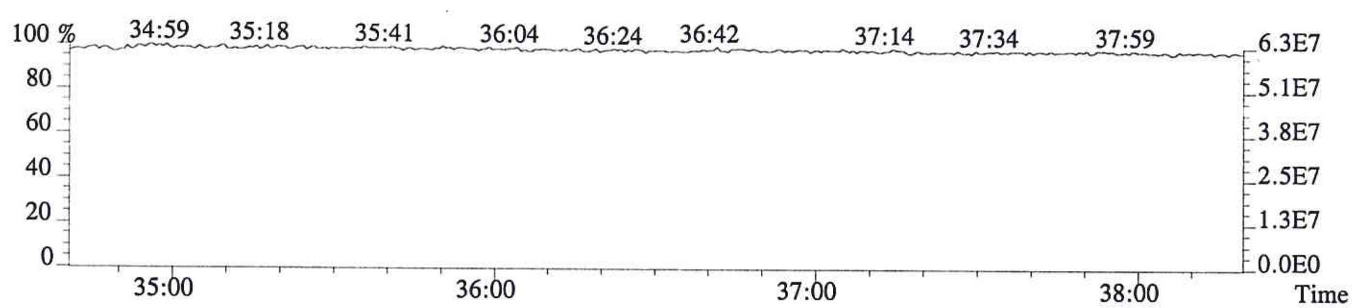
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #7 Filename P604007 Samp: 1 Inj: 1 Acquired: 26-JUN-16 11:18:23
Processed: 7-JUL-16 08:59:10 Sample ID: EQ1600220-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.329e+04	1.716e+04	0.77	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.047e+04	1.287e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.345e+04	2.657e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.038e+04	1.293e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	4.021e+04	5.113e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.228e+04	3.388e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	6.083e+01				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #7 Filename P604007 Samp: 1 Inj: 1 Acquired: 26-JUN-16 11:18:23
Processed: 7-JUL-16 08:59:10 LAB. ID: EQ1600220-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.06e+03	*	*	2.13e+03	*
3	2,3,4,7,8-PeCDF	*	8.60e+02	*	*	1.76e+03	*
11	2,3,7,8-TCDD	*	1.41e+03	*	*	1.39e+03	*
18	13C-2,3,7,8-TCDF	2.40e+06	5.04e+03	4.8e+02	3.12e+06	2.59e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	3.77e+06	6.60e+02	5.7e+03	2.36e+06	3.50e+03	6.8e+02
20	13C-2,3,4,7,8-PeCDF	*	6.60e+02	*	*	3.50e+03	*
24	13C-1,2,3,7,8,9-HxCDF	2.64e+06	9.60e+02	2.8e+03	5.21e+06	1.50e+03	3.5e+03
26	13C-1,2,3,4-TCDF	*	5.04e+03	*	*	2.59e+03	*
27	13C-2,3,7,8-TCDD	1.94e+06	5.98e+03	3.2e+02	2.47e+06	4.64e+03	5.3e+02
33	13C-1,2,3,4-TCDD	7.64e+06	5.98e+03	1.3e+03	9.71e+06	4.64e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	8.63e+06	4.02e+03	2.1e+03	6.98e+06	2.29e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	1.20e+04	1.36e+03	8.8e+00			

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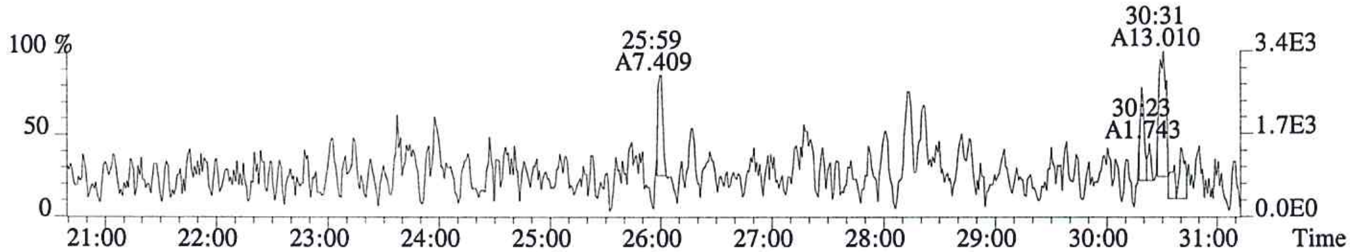
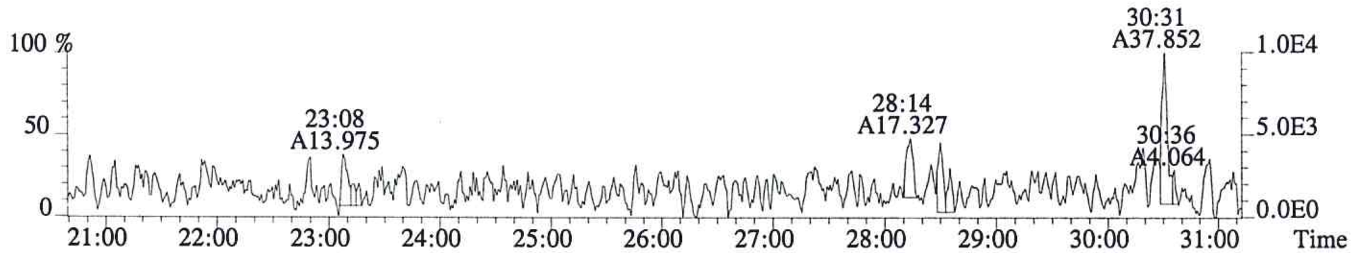
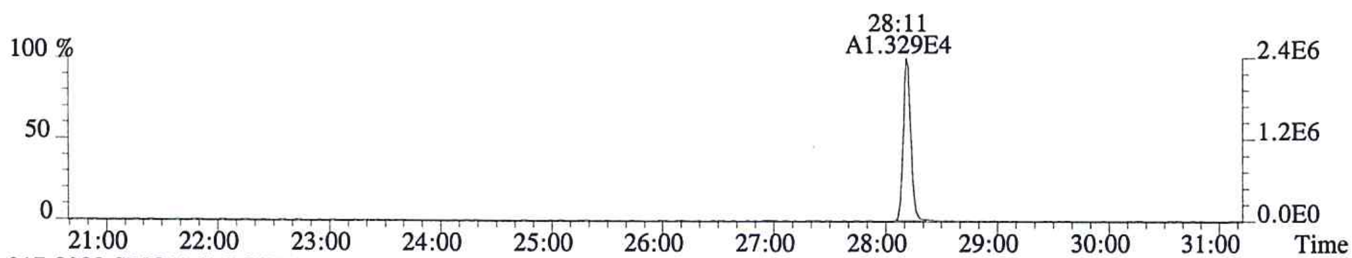
File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



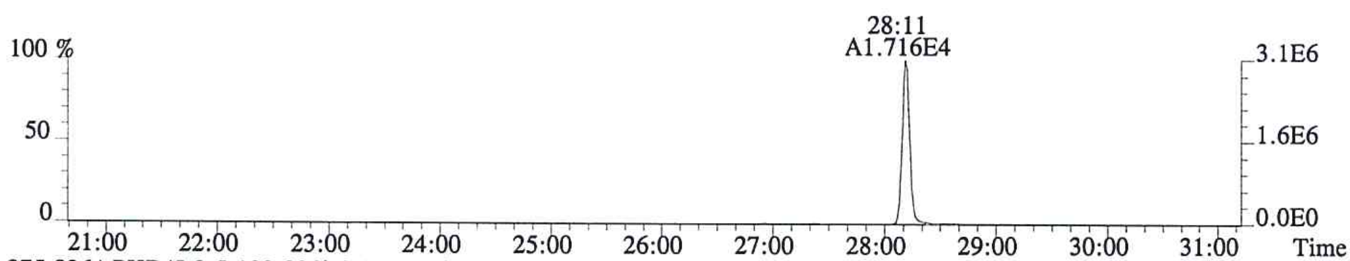
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



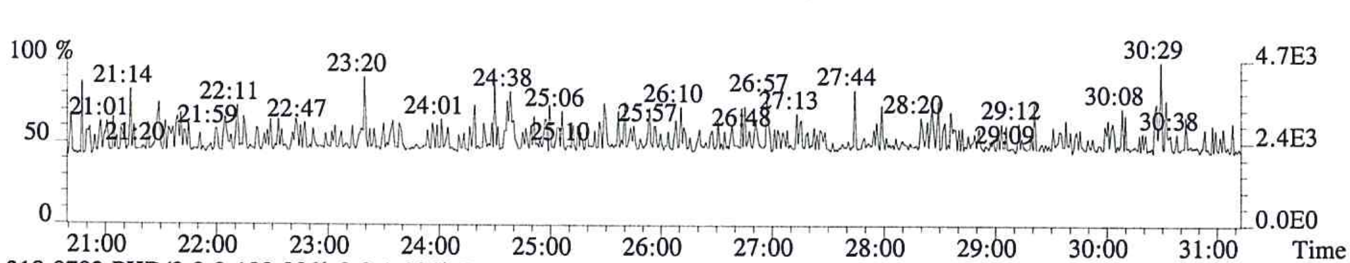
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5044.0,1.00%,F,T)



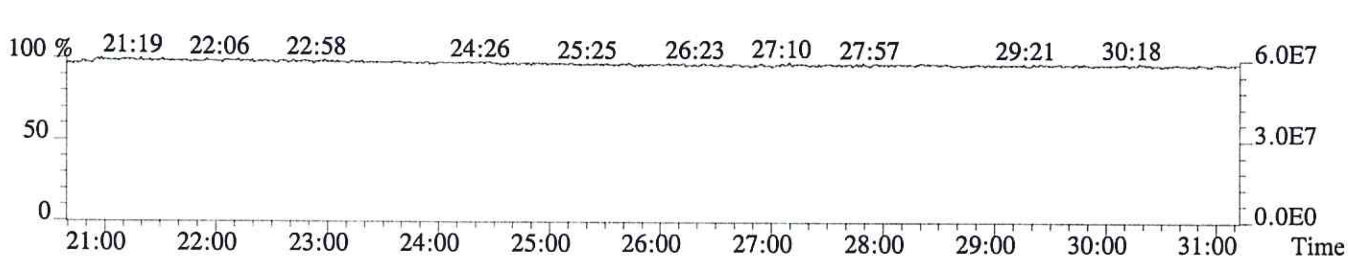
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

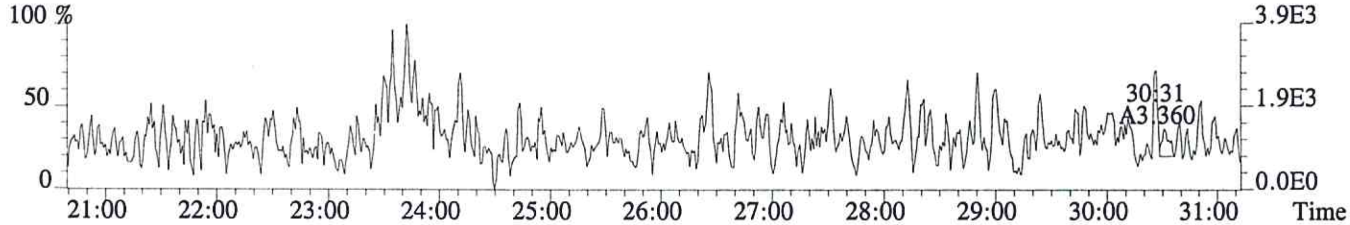


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

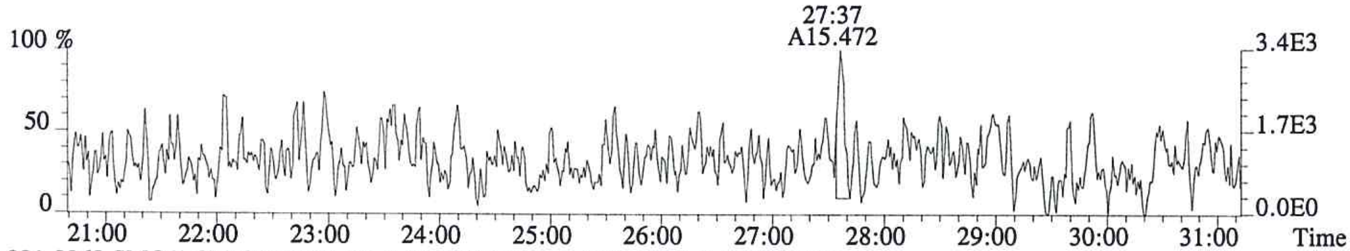


File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

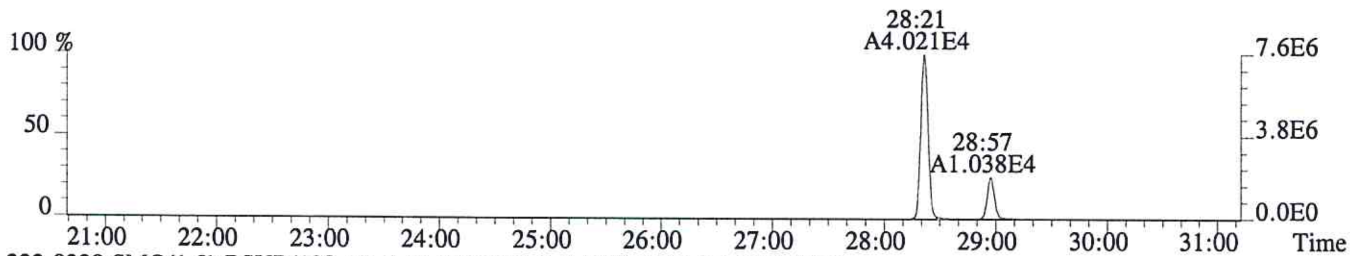
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



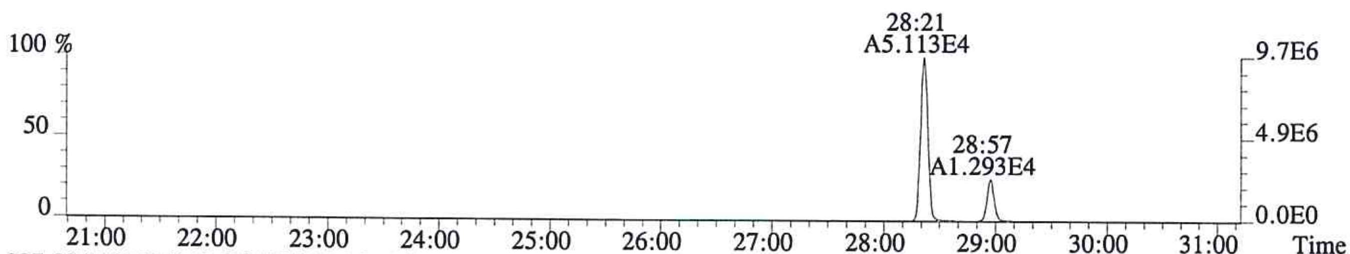
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



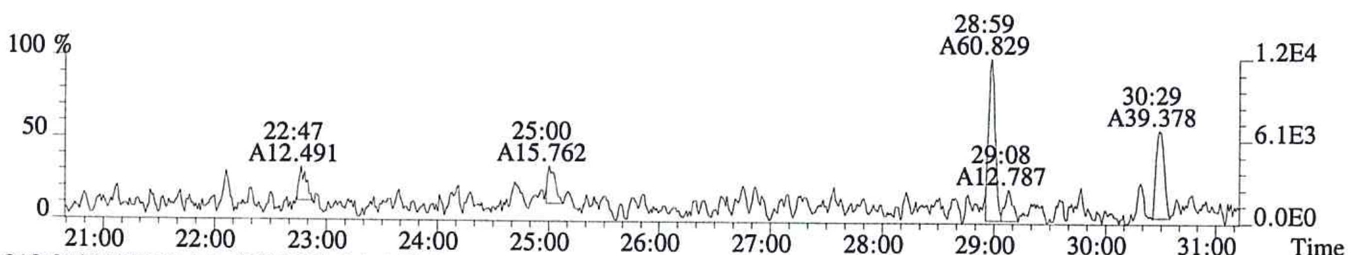
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



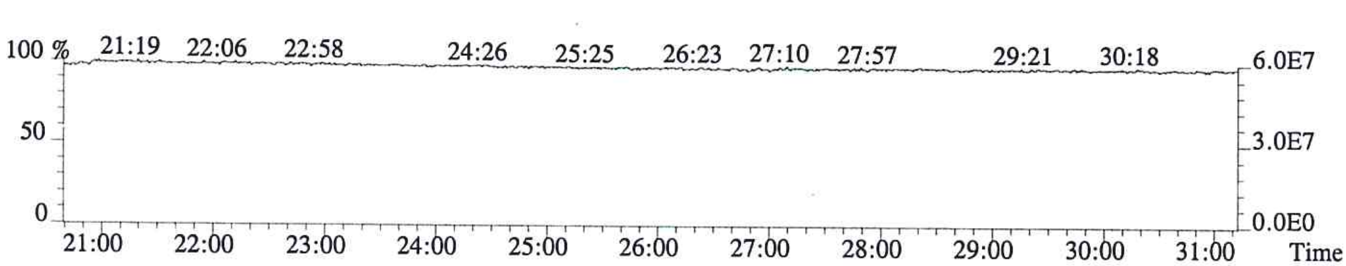
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4644.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)

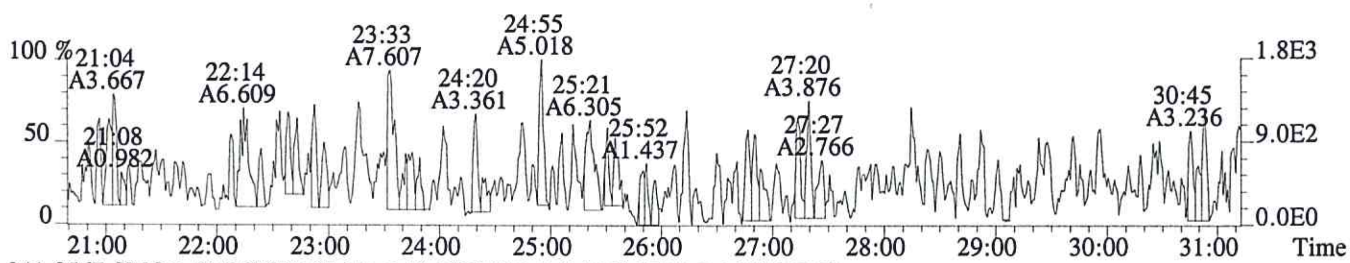


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

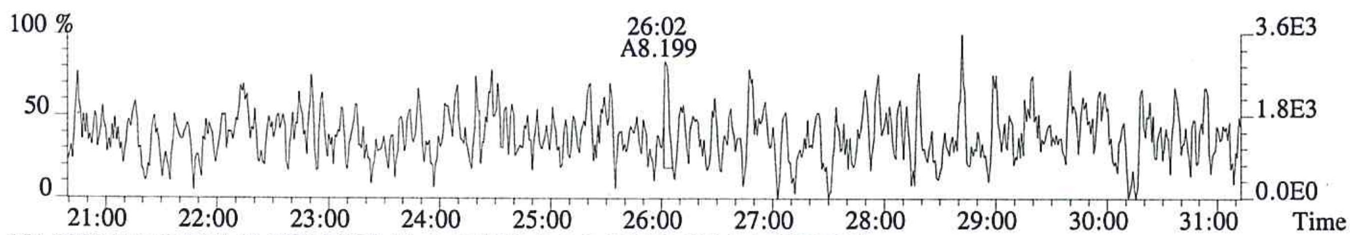


File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

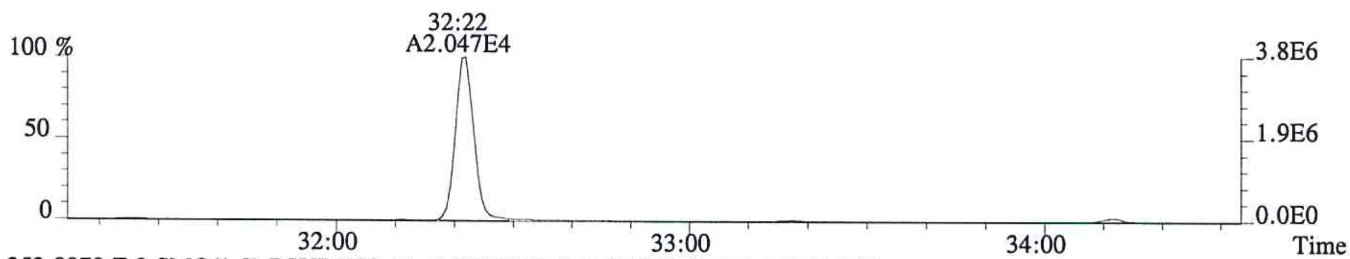
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



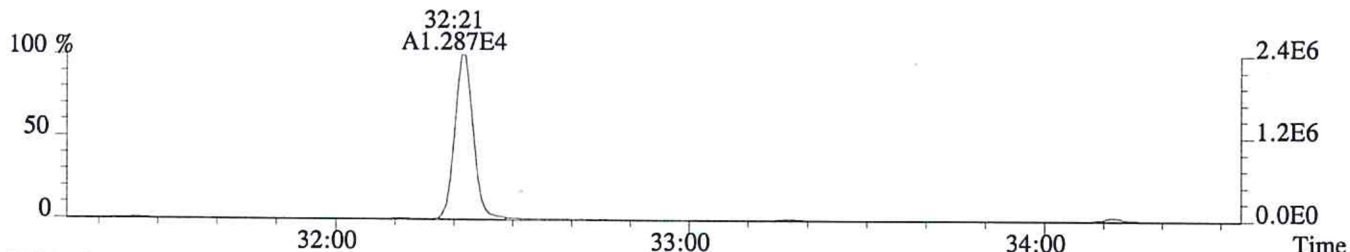
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



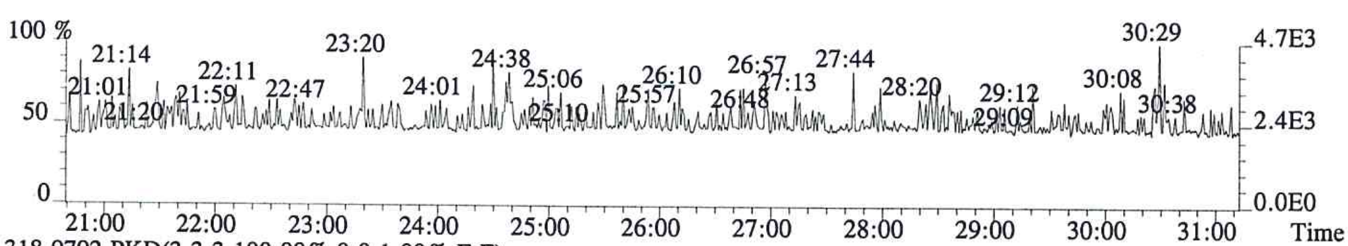
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



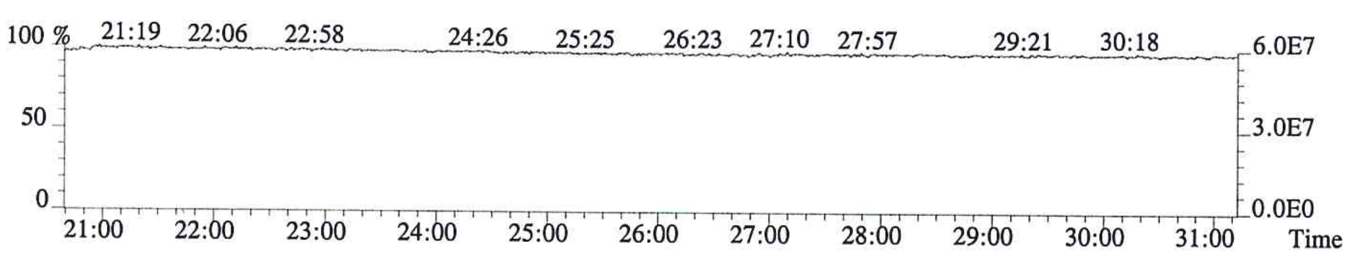
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



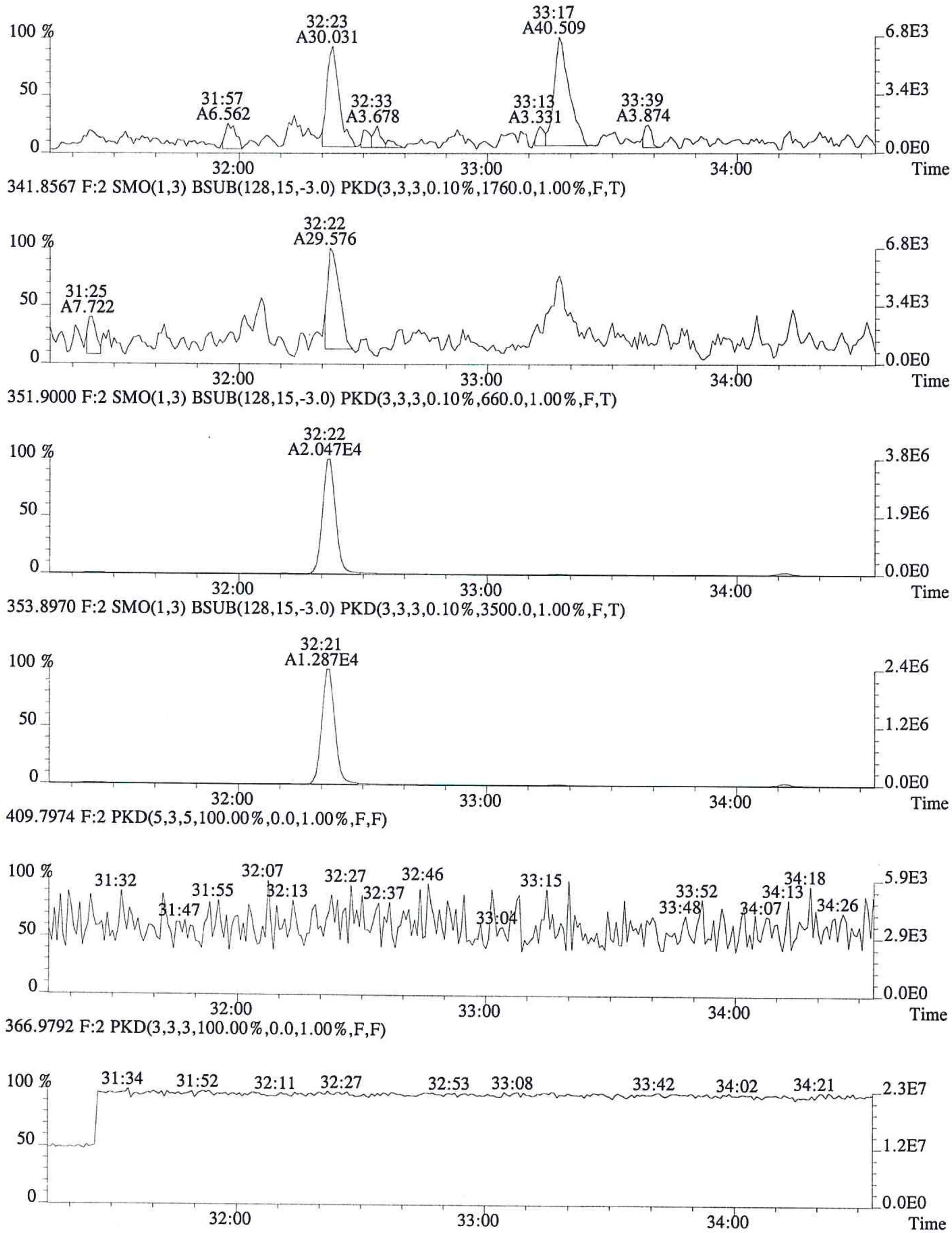
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



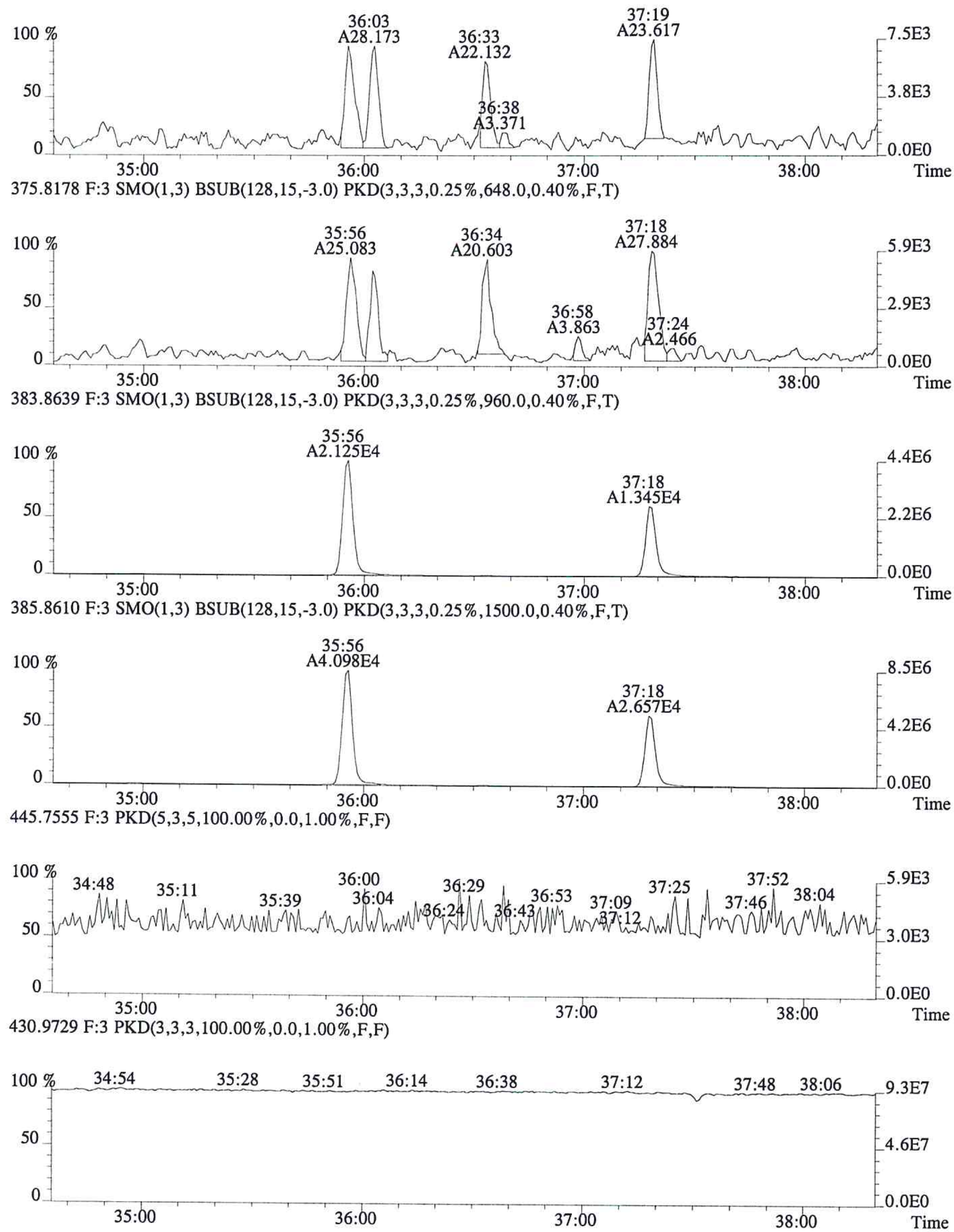
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



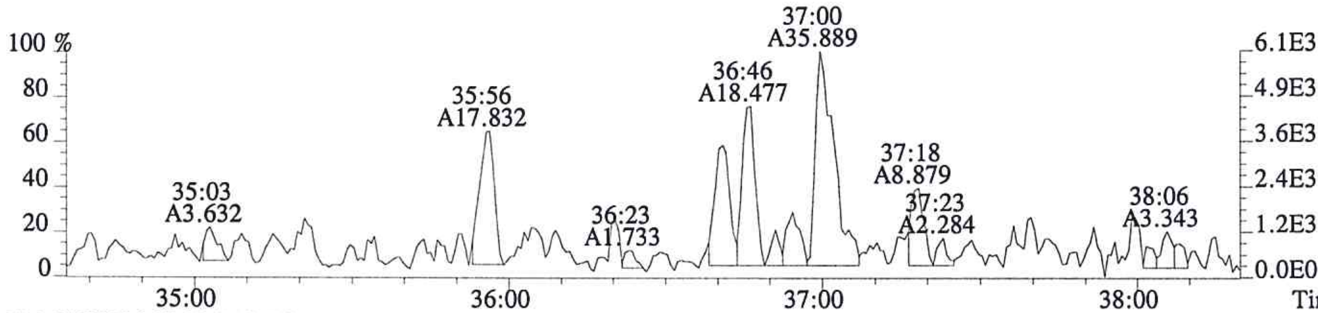
File:P604007 #1-299 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



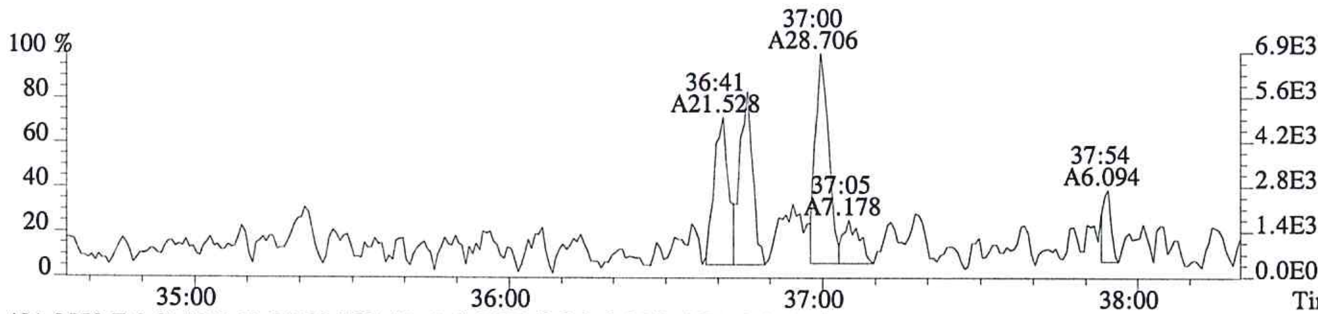
File:P604007 #1-337 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB



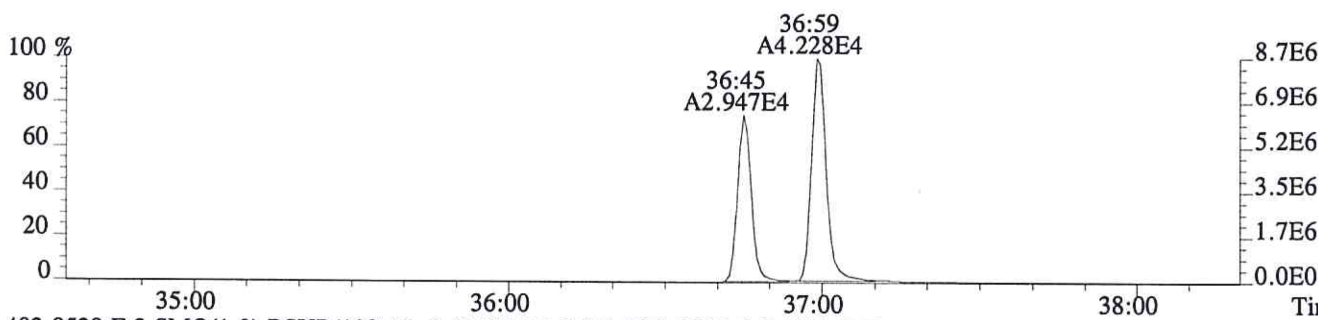
File:P604007 #1-337 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



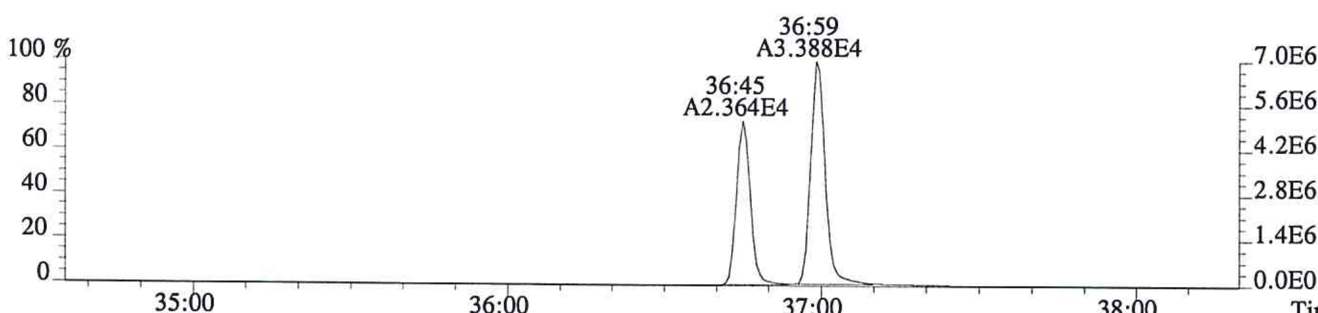
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



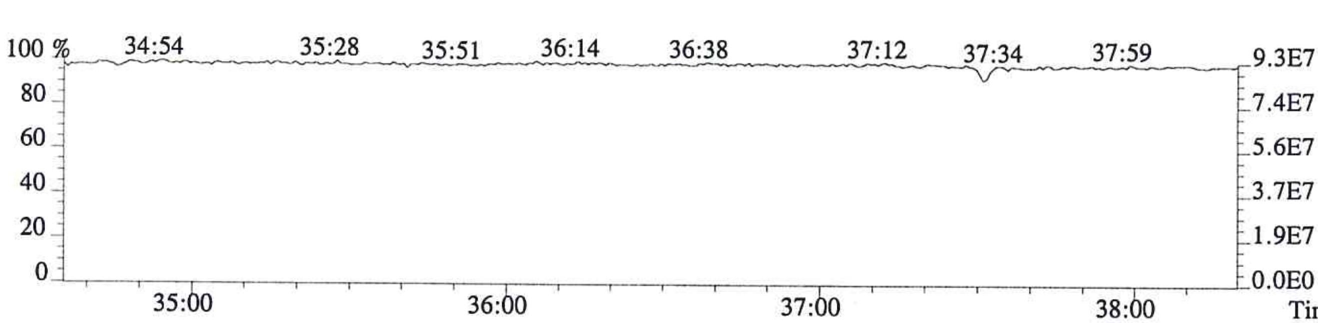
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4024.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2292.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #10 Filename P604016 Samp: 1 Inj: 1 Acquired: 26-JUN-16 18:59:32
Processed: 7-JUL-16 08:59:11 Sample ID: EQ1600220-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:12	2.611e+03	3.524e+03	0.74	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	2.259e+04	1.466e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:58	2.329e+03	2.902e+03	0.80	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.443e+04	1.841e+04	0.78	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:21	2.436e+04	1.556e+04	1.57	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.849e+04	3.576e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.086e+04	1.379e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	3.800e+04	4.825e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.476e+04	3.553e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	1.319e+02				no	0.945

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ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #10 Filename P604016 Samp: 1 Inj: 1 Acquired: 26-JUN-16 18:59:32
Processed: 7-JUL-16 08:59:11 LAB. ID: EQ1600220-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.73e+05	1.26e+03	3.8e+02	6.35e+05	2.66e+03	2.4e+02
3	2,3,4,7,8-PeCDF	4.39e+06	1.77e+03	2.5e+03	2.88e+06	9.32e+02	3.1e+03
11	2,3,7,8-TCDD	4.31e+05	1.52e+03	2.8e+02	5.38e+05	1.20e+03	4.5e+02
18	13C-2,3,7,8-TCDF	2.67e+06	5.78e+03	4.6e+02	3.39e+06	3.48e+03	9.7e+02
19	13C-1,2,3,7,8-PeCDF	4.63e+06	1.86e+03	2.5e+03	2.96e+06	1.70e+03	1.7e+03
20	13C-2,3,4,7,8-PeCDF	*	1.86e+03	*	*	1.70e+03	*
24	13C-1,2,3,7,8,9-HxCDF	3.84e+06	1.06e+03	3.6e+03	7.49e+06	2.02e+03	3.7e+03
26	13C-1,2,3,4-TCDF	*	5.78e+03	*	*	3.48e+03	*
27	13C-2,3,7,8-TCDD	2.13e+06	8.33e+03	2.6e+02	2.69e+06	3.92e+03	6.9e+02
33	13C-1,2,3,4-TCDD	7.36e+06	8.33e+03	8.8e+02	9.30e+06	3.92e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	9.74e+06	1.88e+03	5.2e+03	7.82e+06	1.24e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	2.45e+04	1.99e+03	1.2e+01			

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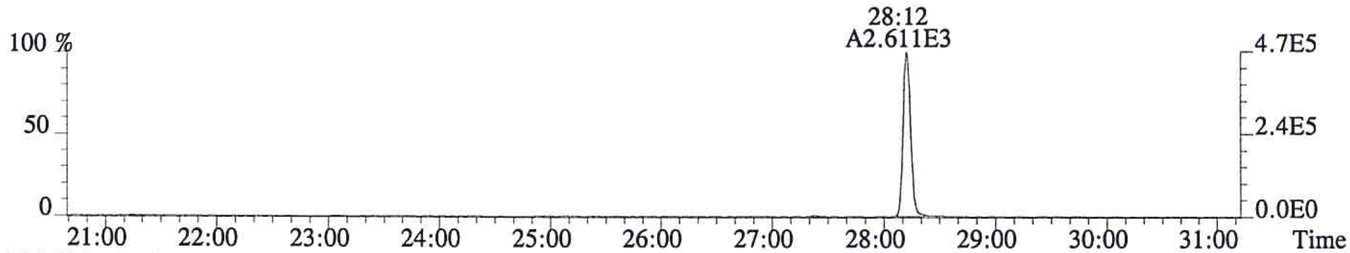
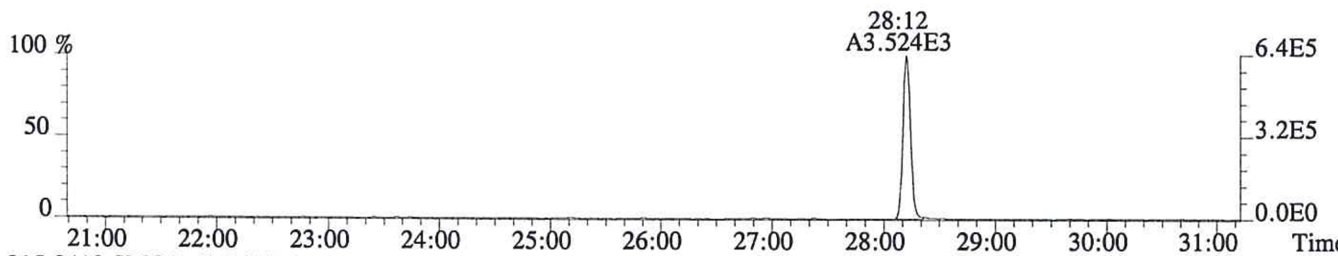
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

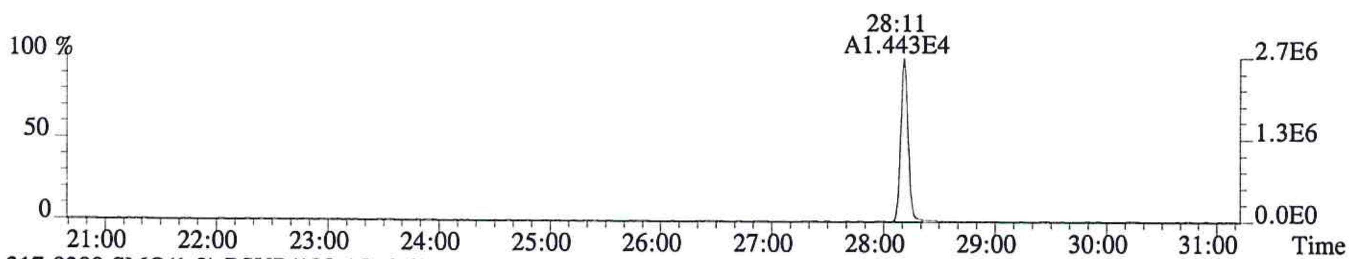
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



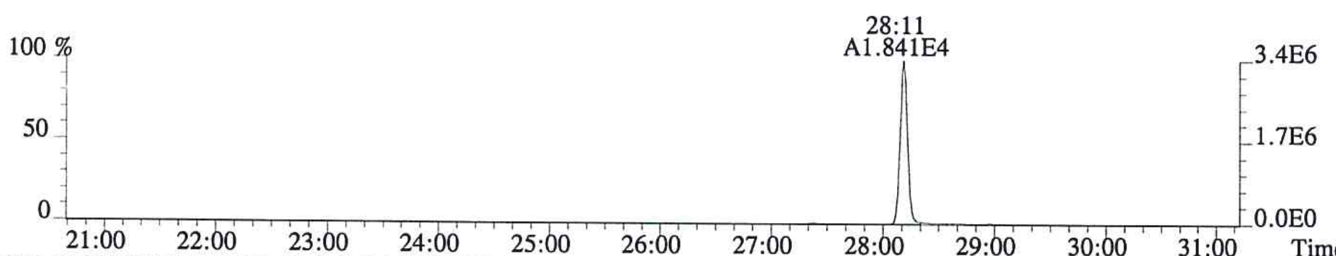
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2656.0,1.00%,F,T)



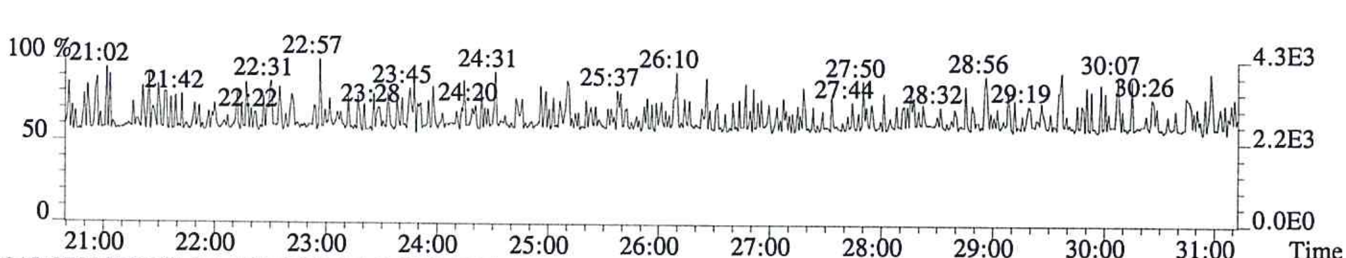
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5784.0,1.00%,F,T)



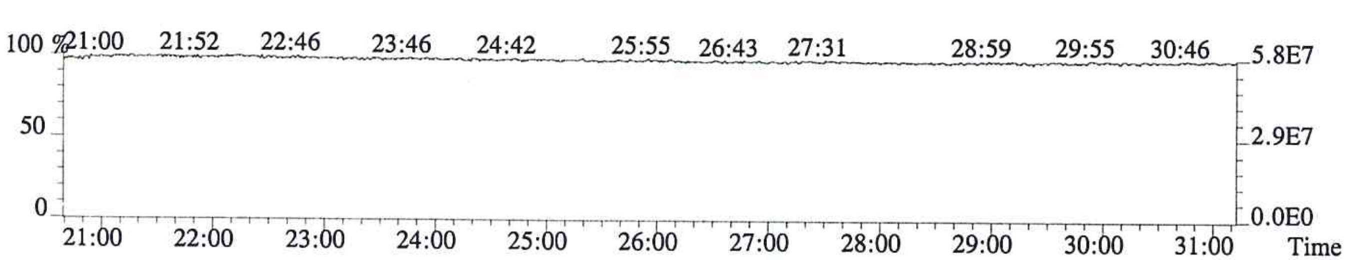
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



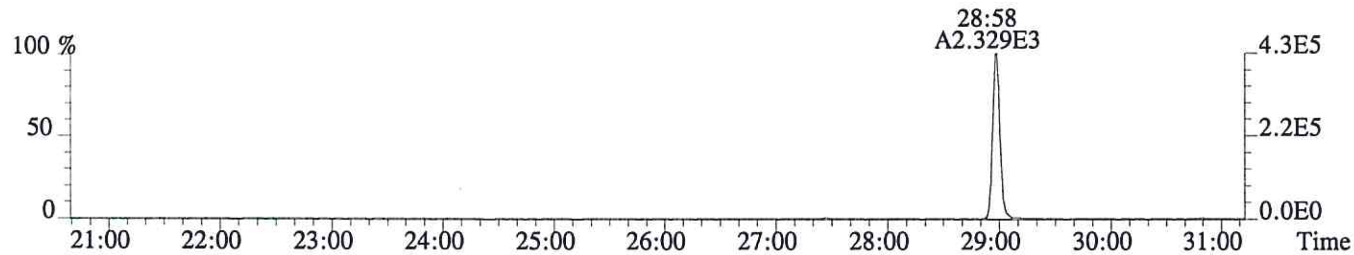
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



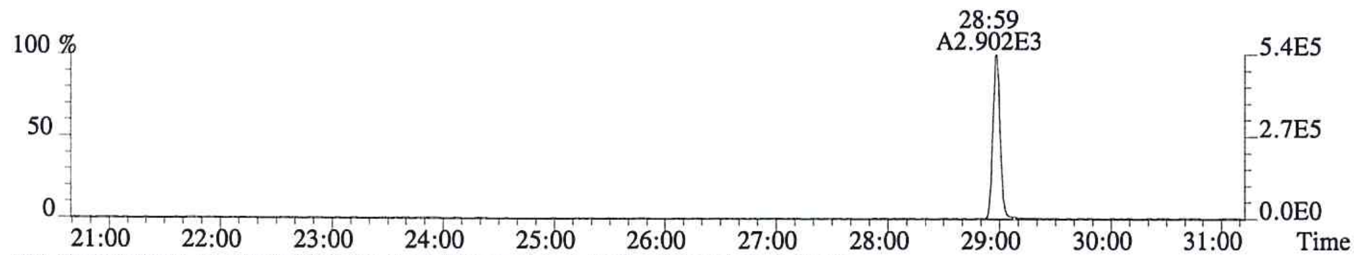
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



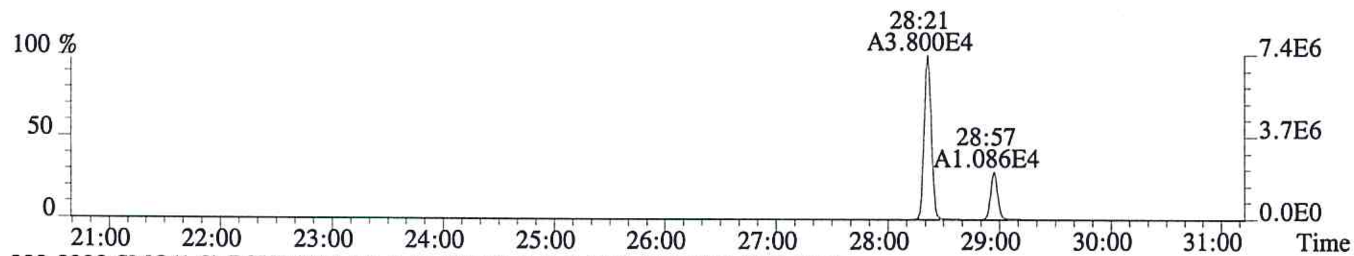
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



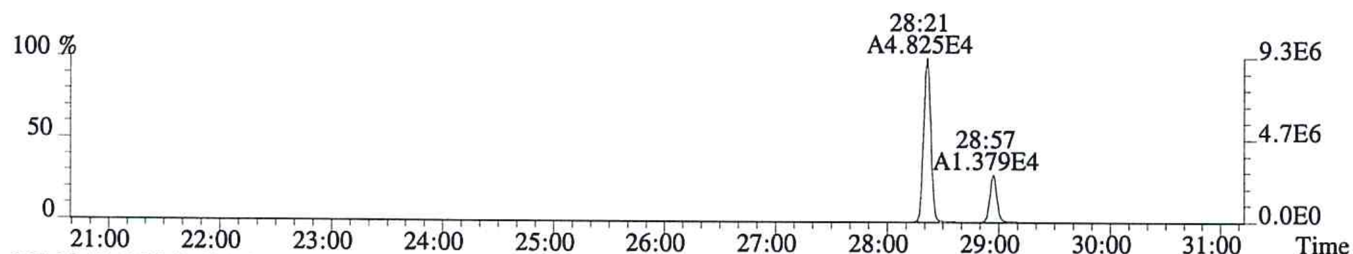
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



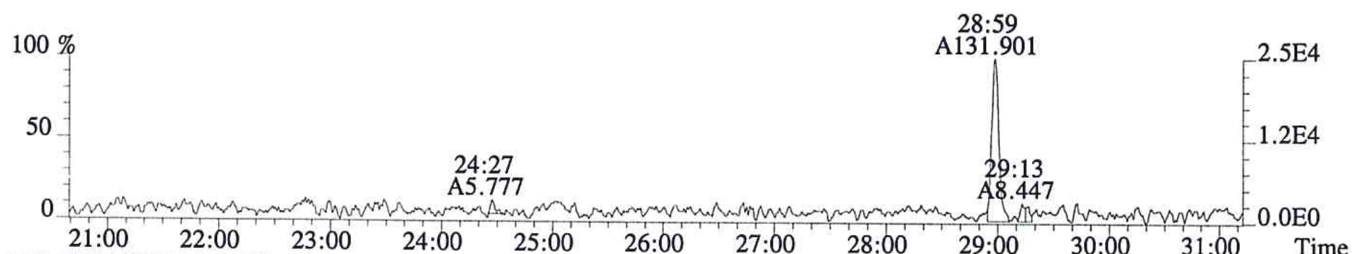
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8328.0,1.00%,F,T)



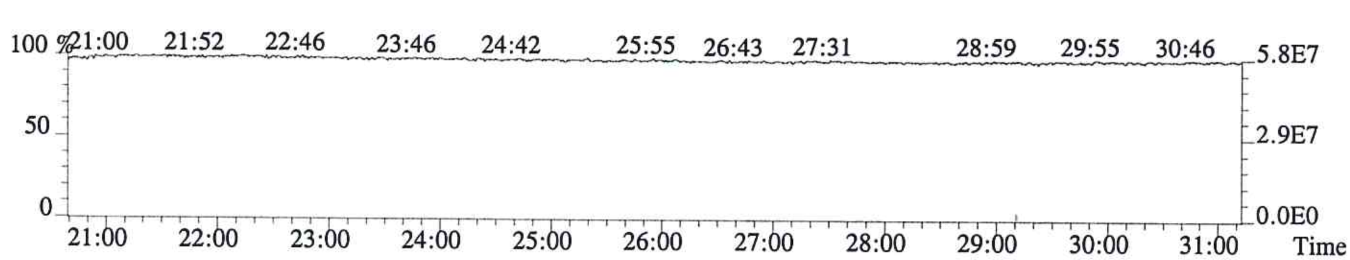
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3920.0,1.00%,F,T)



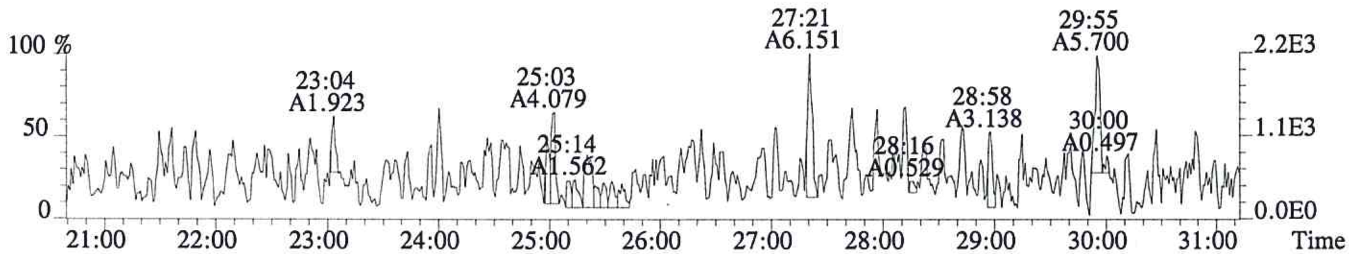
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



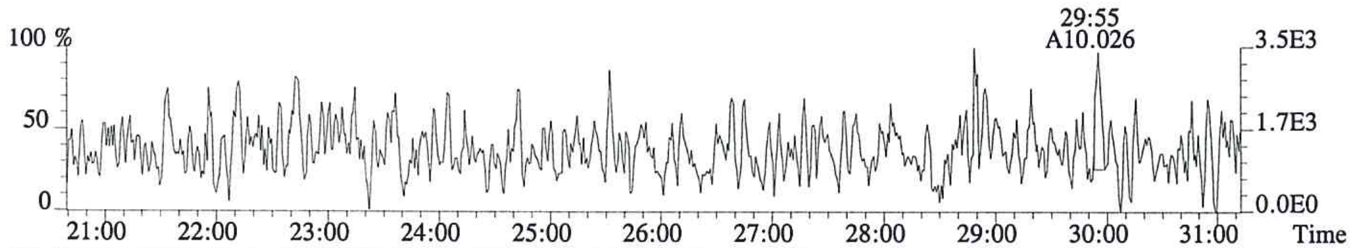
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



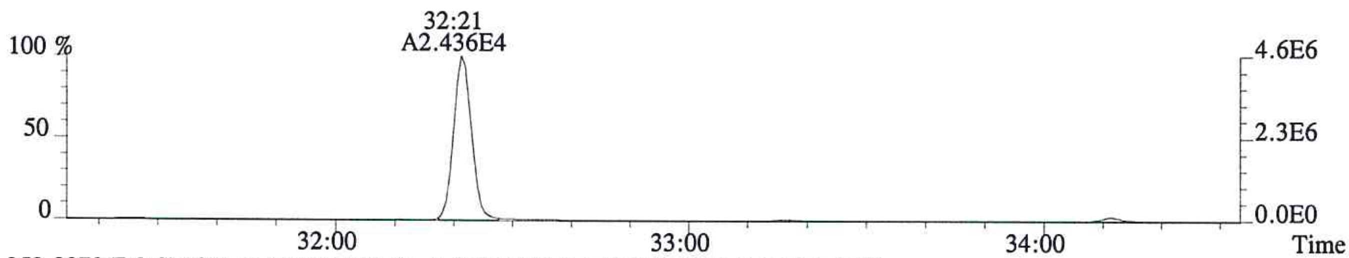
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



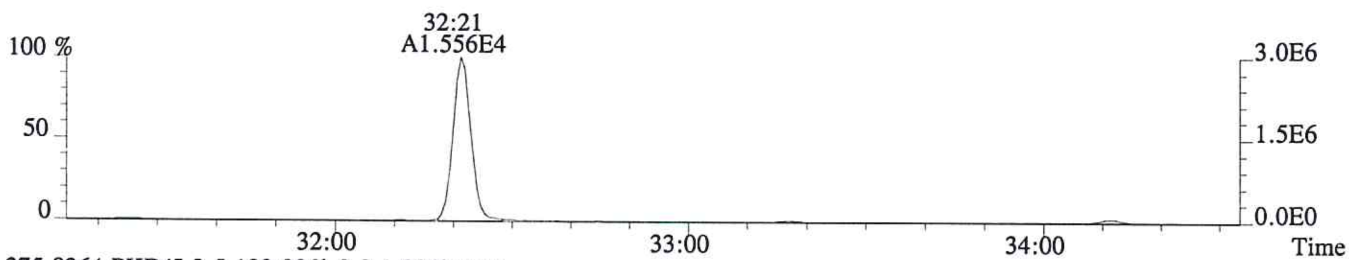
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



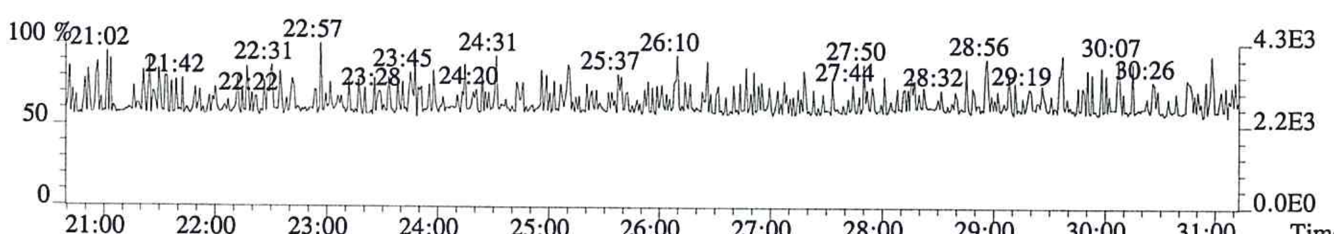
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



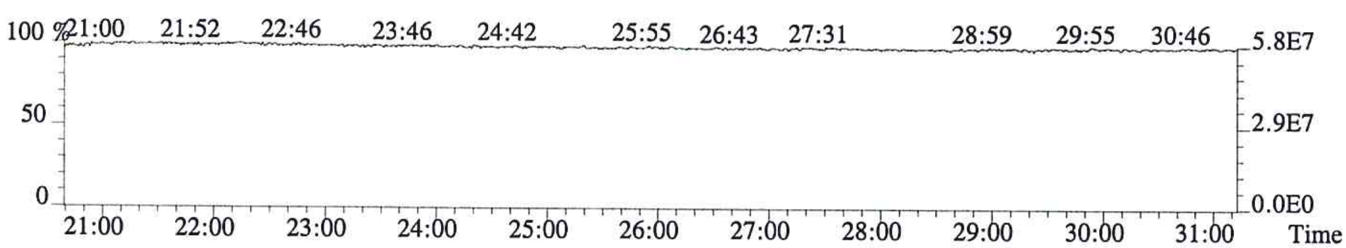
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



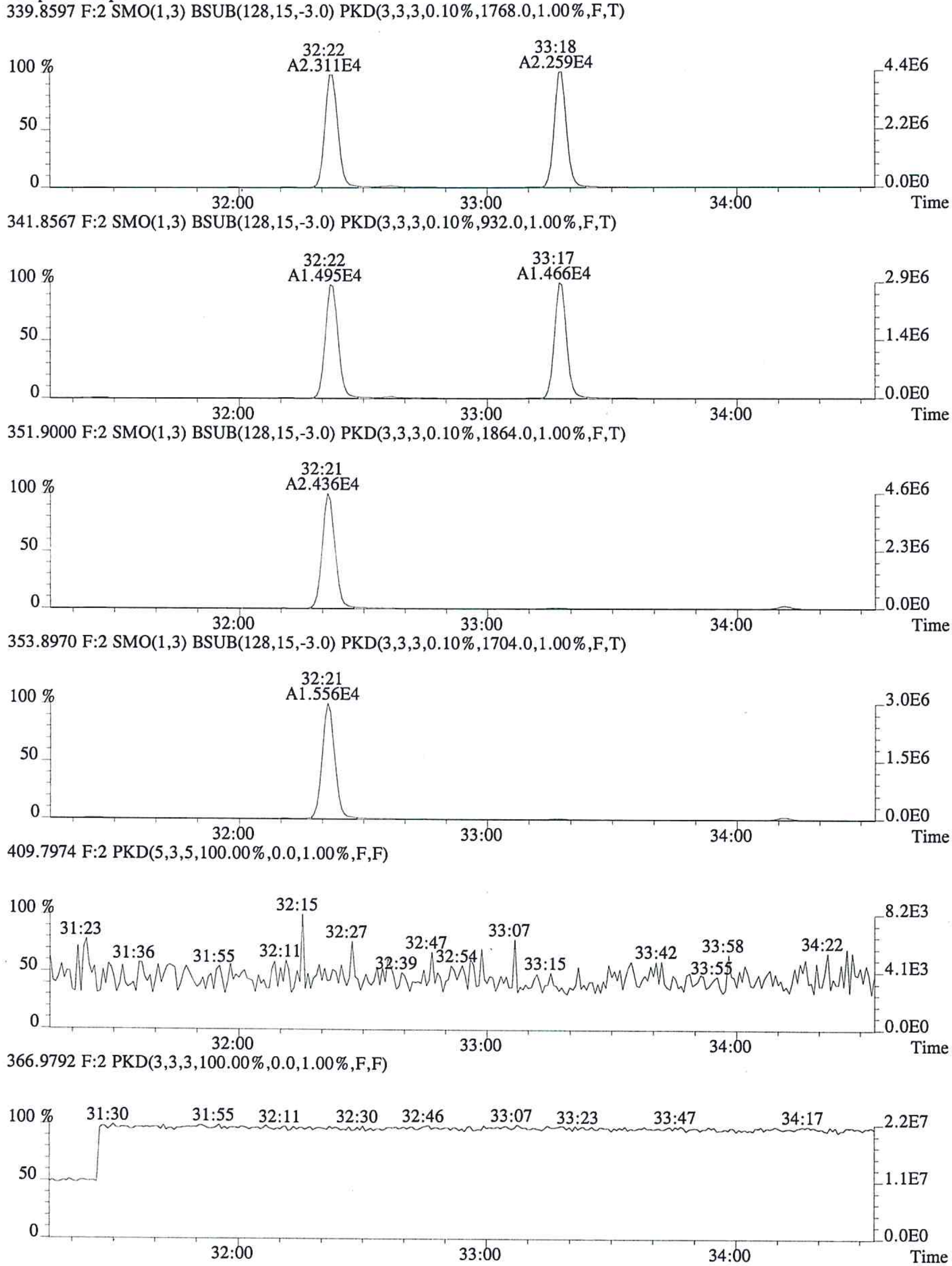
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



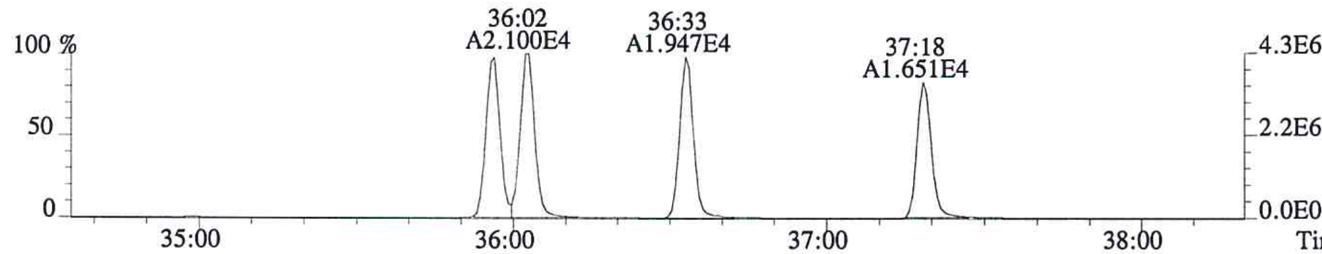
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



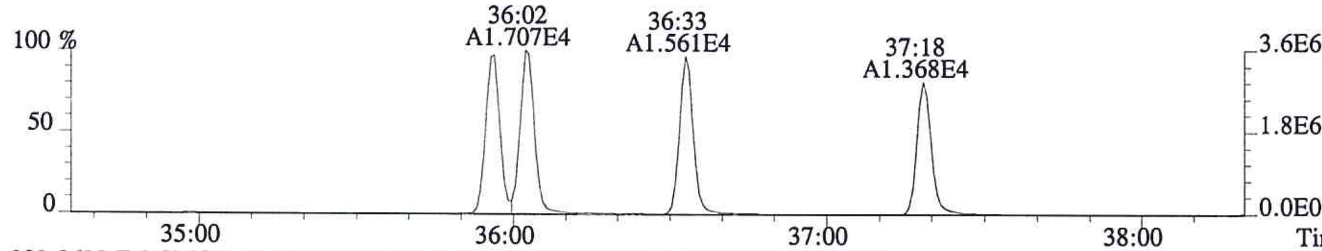
File:P604016 #1-299 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS



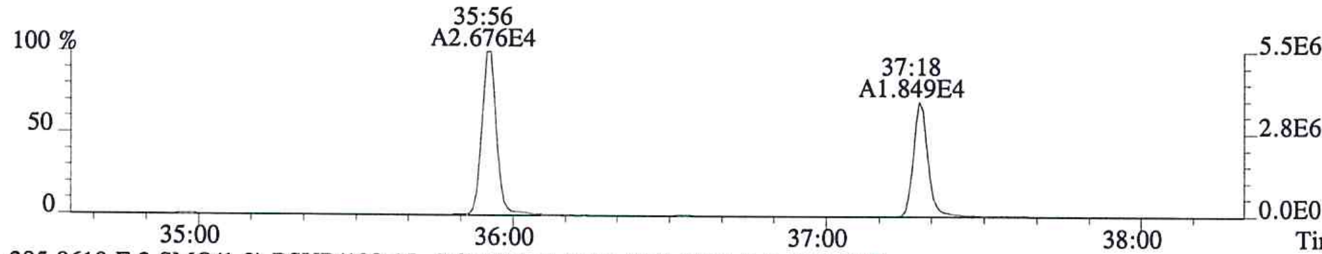
File:P604016 #1-337 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



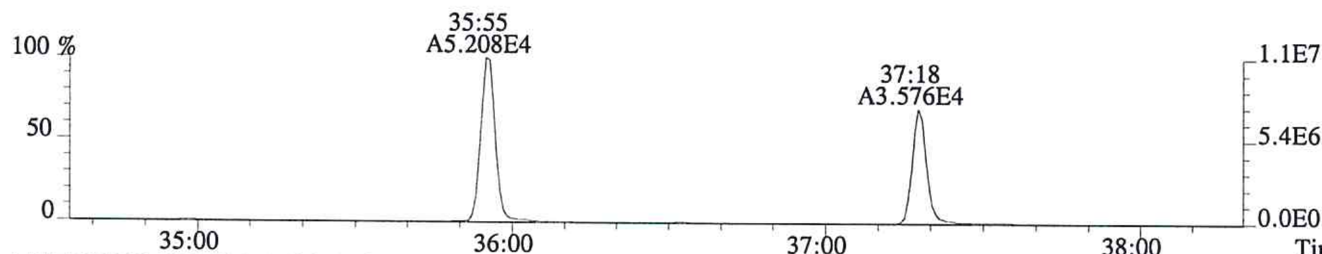
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



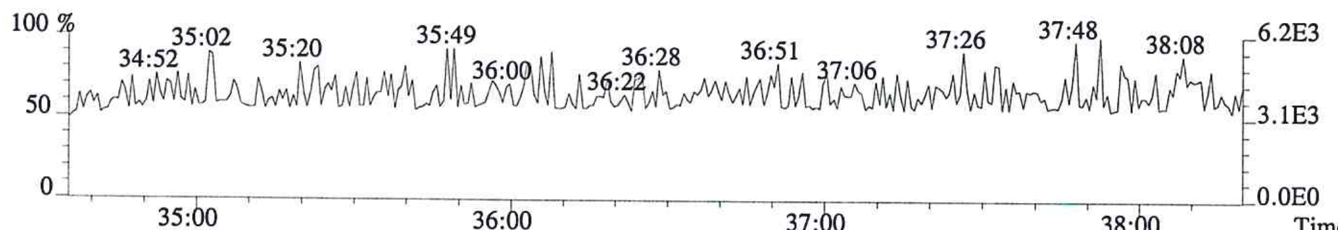
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



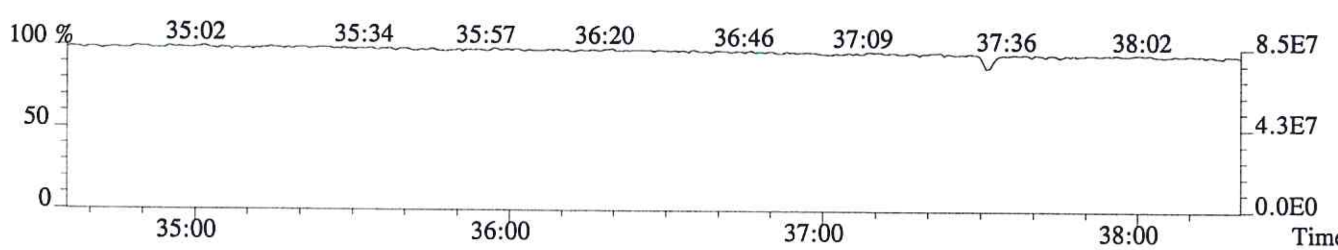
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2024.0,0.40%,F,T)



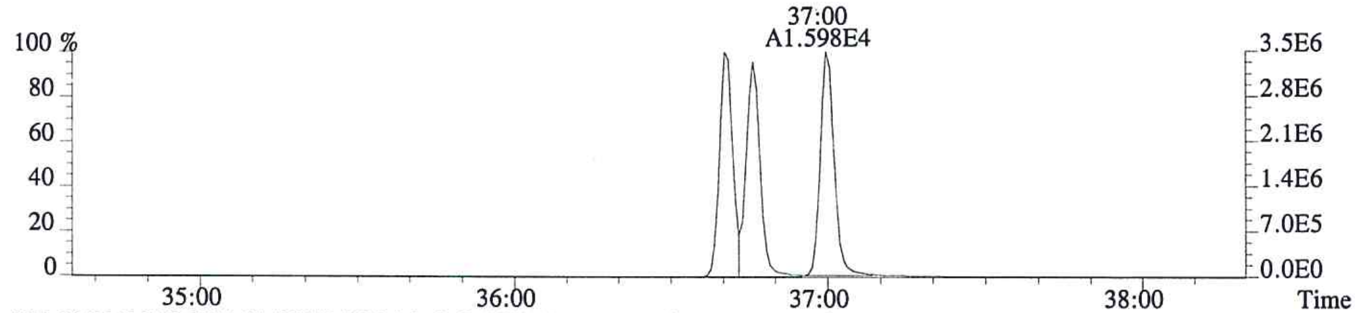
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



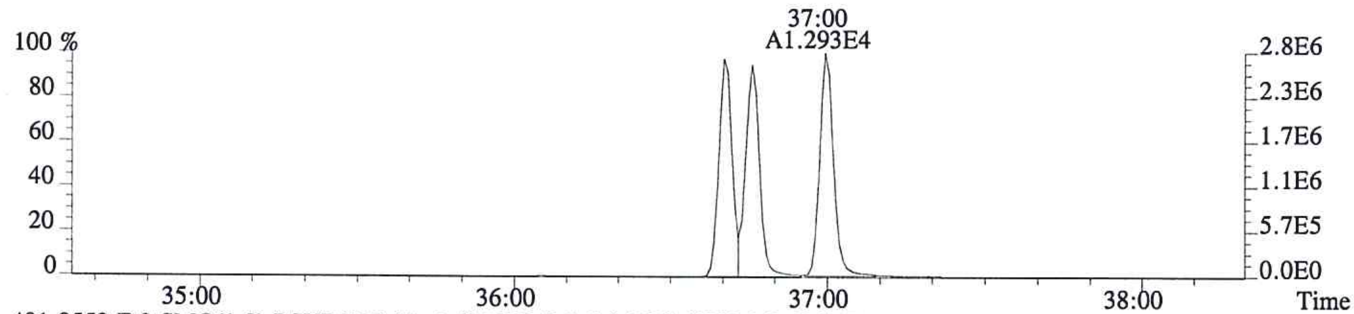
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



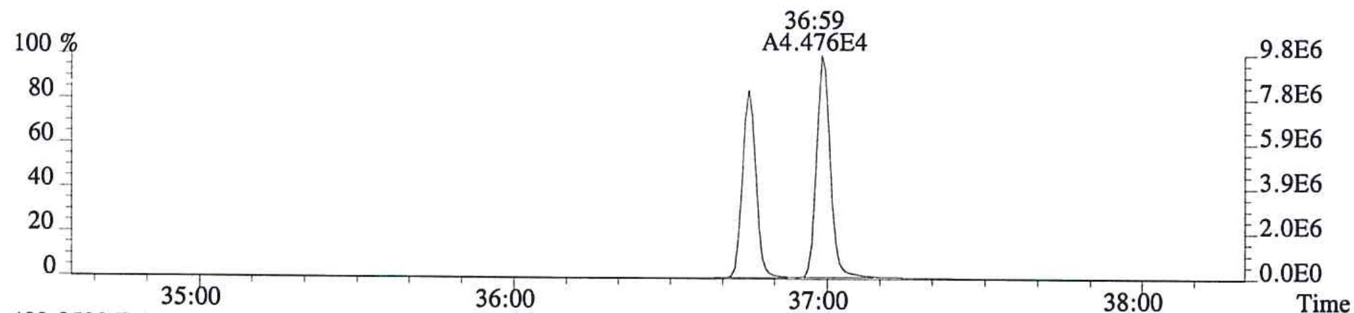
File:P604016 #1-337 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



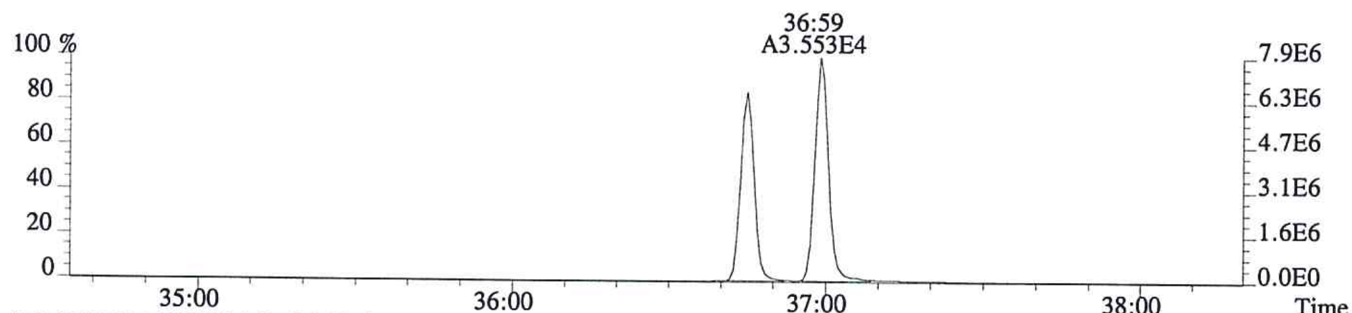
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



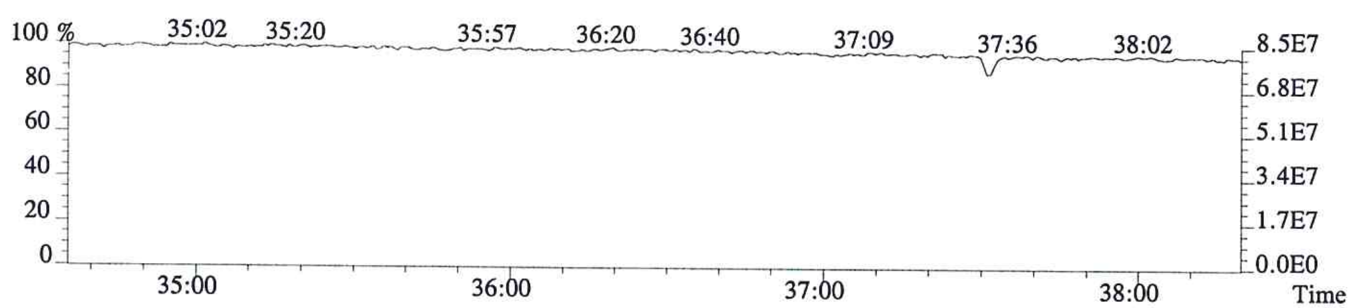
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #11 Filename P604017 Samp: 1 Inj: 1 Acquired: 26-JUN-16 19:48:33
Processed: 7-JUL-16 08:59:12 Sample ID: EQ1600220-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:13	3.963e+02	5.017e+02	0.79	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	3.387e+03	2.195e+03	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:59	3.177e+02	4.162e+02	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.977e+03	2.589e+03	0.76	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	3.624e+03	2.342e+03	1.55	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.227e+03	6.436e+03	0.50	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	1.569e+03	1.956e+03	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	5.153e+03	6.578e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	8.149e+03	6.718e+03	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:58	2.189e+01				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #11 Filename P604017 Samp: 1 Inj: 1 Acquired: 26-JUN-16 19:48:33
Processed: 7-JUL-16 08:59:12 LAB. ID: EQ1600220-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.50e+04	1.12e+03	6.7e+01	8.46e+04	3.27e+03	2.6e+01
3	2,3,4,7,8-PeCDF	6.91e+05	1.37e+03	5.0e+02	4.33e+05	2.52e+03	1.7e+02
11	2,3,7,8-TCDD	6.27e+04	1.65e+03	3.8e+01	8.14e+04	9.20e+02	8.8e+01
18	13C-2,3,7,8-TCDF	3.53e+05	6.04e+03	5.9e+01	4.52e+05	3.39e+03	1.3e+02
19	13C-1,2,3,7,8-PeCDF	6.76e+05	6.60e+02	1.0e+03	4.38e+05	1.31e+03	3.3e+02
20	13C-2,3,4,7,8-PeCDF	*	6.60e+02	*	*	1.31e+03	*
24	13C-1,2,3,7,8,9-HxCDF	6.75e+05	8.04e+02	8.4e+02	1.36e+06	1.62e+03	8.4e+02
26	13C-1,2,3,4-TCDF	*	6.04e+03	*	*	3.39e+03	*
27	13C-2,3,7,8-TCDD	2.88e+05	8.47e+03	3.4e+01	3.59e+05	3.44e+03	1.0e+02
33	13C-1,2,3,4-TCDD	9.77e+05	8.47e+03	1.2e+02	1.22e+06	3.44e+03	3.6e+02
34	13C-1,2,3,7,8,9-HxCDD	1.74e+06	1.77e+03	9.8e+02	1.42e+06	1.75e+03	8.1e+02
35	37Cl-2,3,7,8-TCDD	4.59e+03	2.03e+03	2.3e+00			

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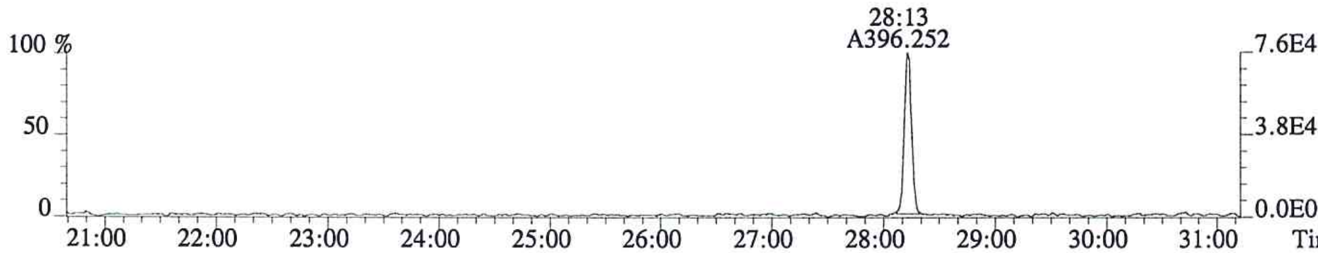
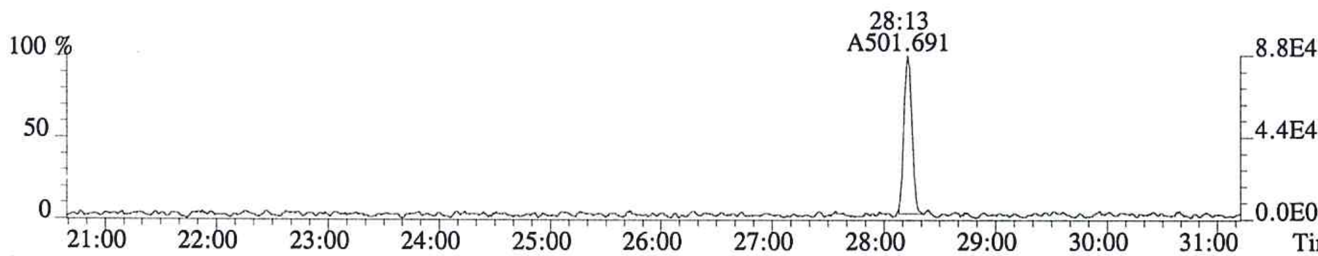
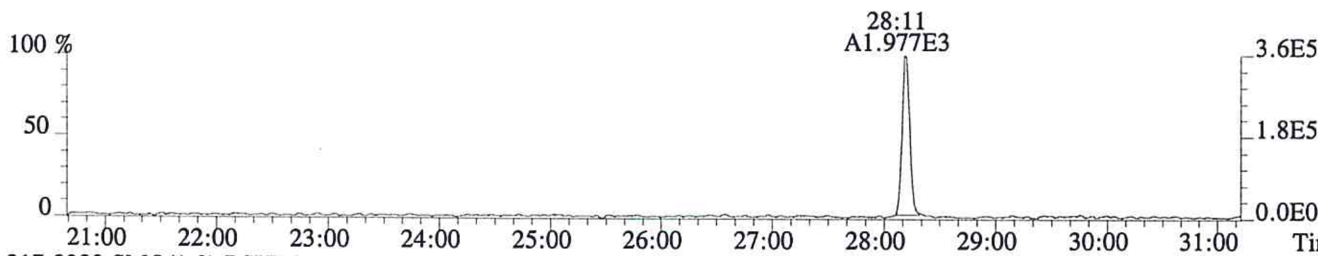
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



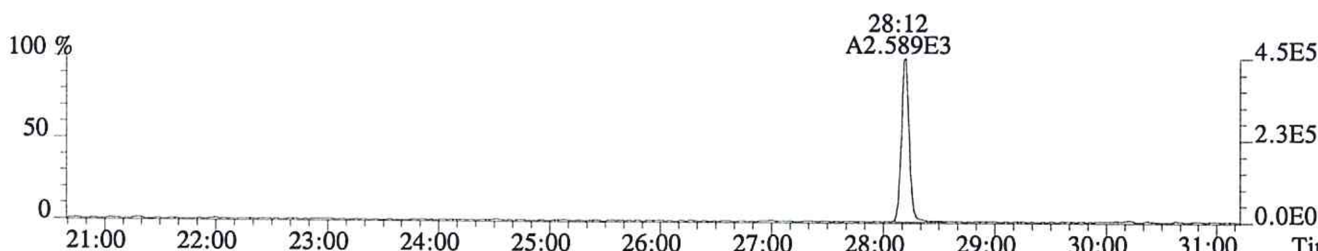
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3268.0,1.00%,F,T)



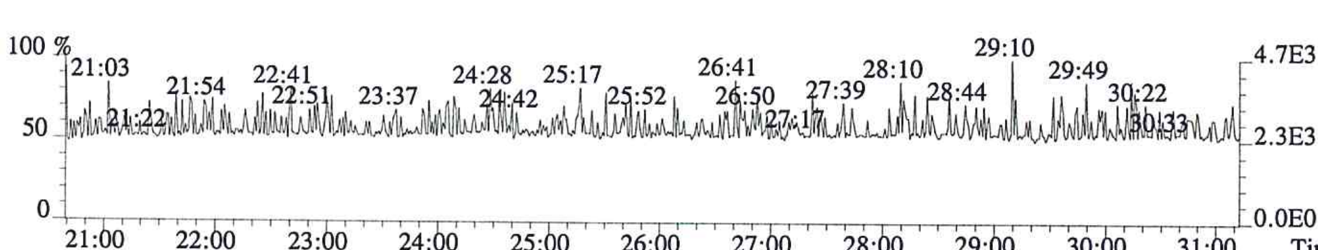
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6040.0,1.00%,F,T)



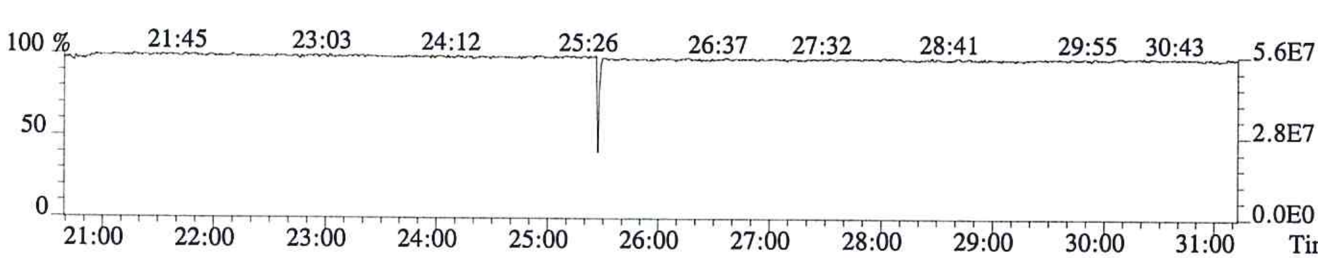
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)



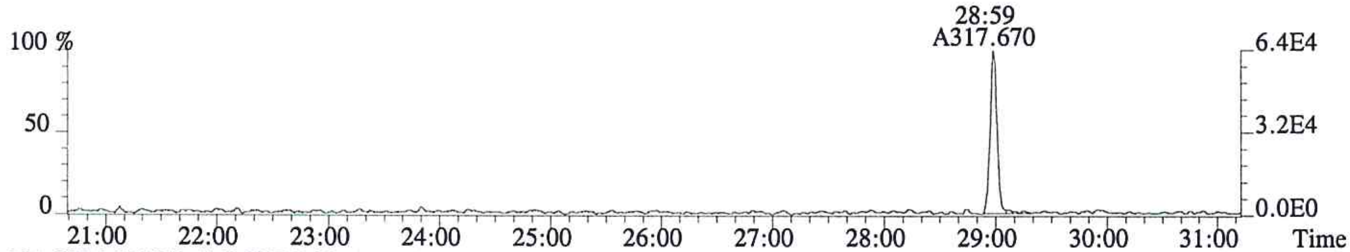
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



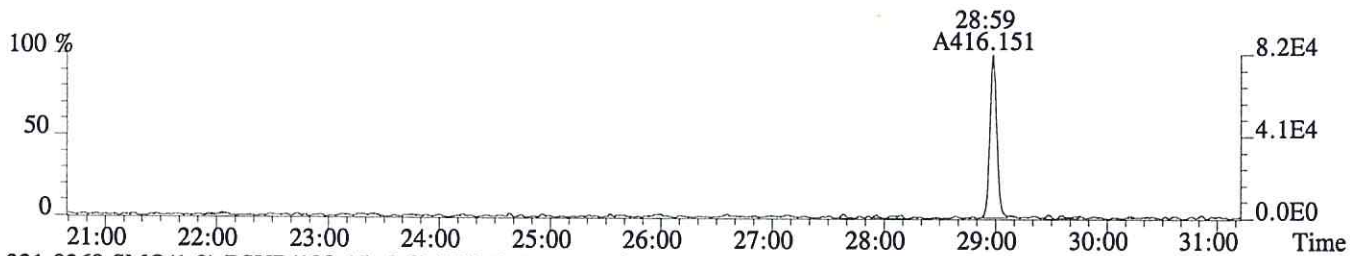
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



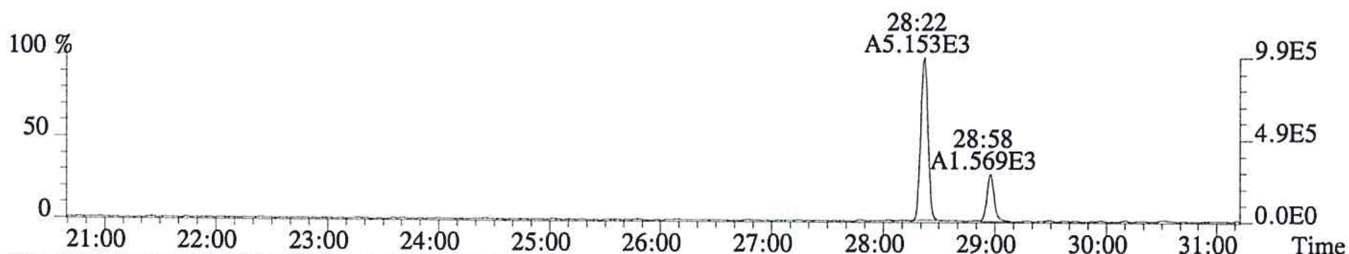
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



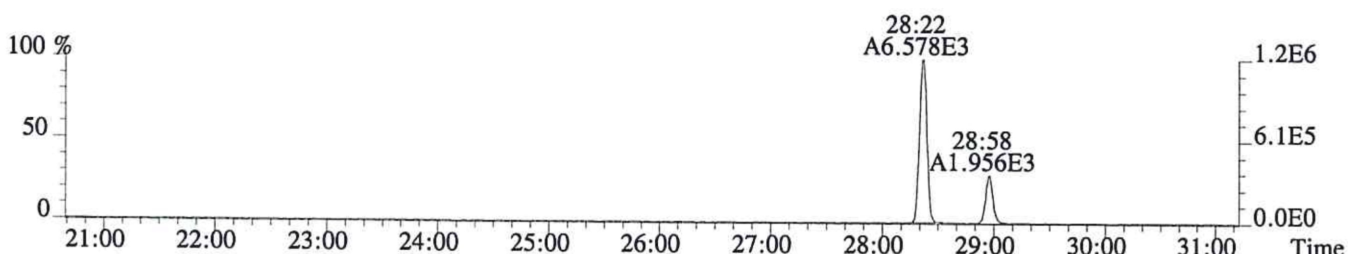
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



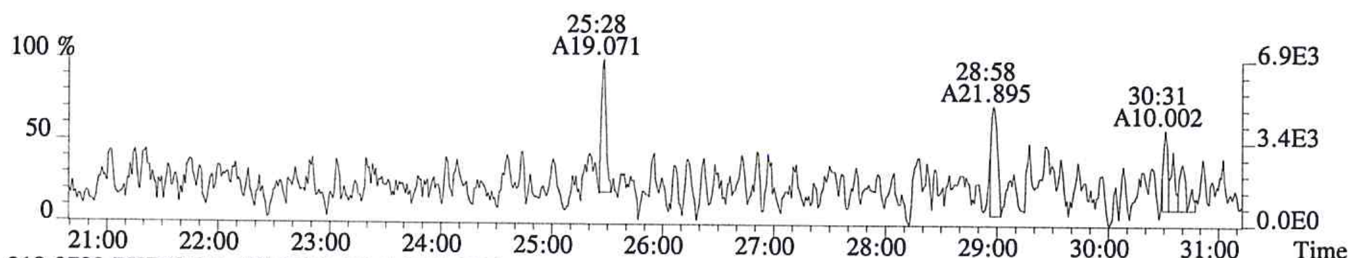
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8472.0,1.00%,F,T)



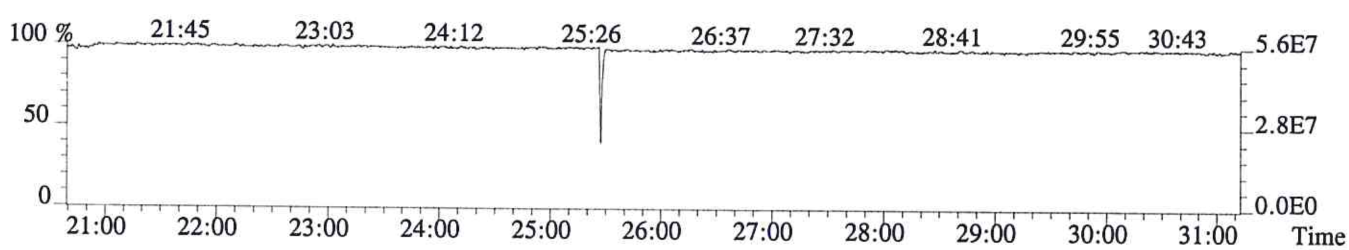
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



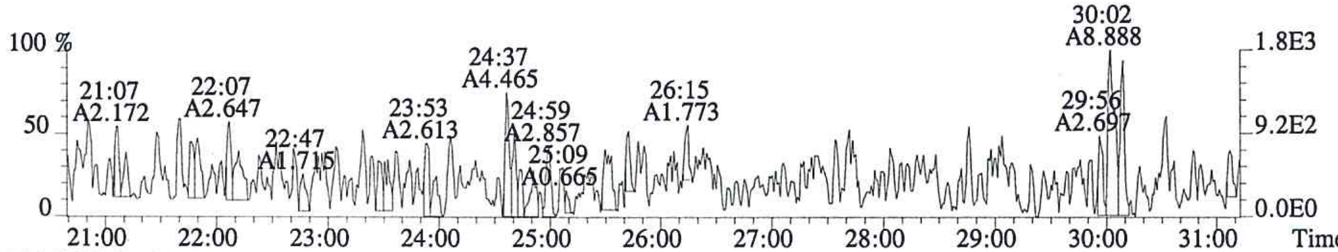
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



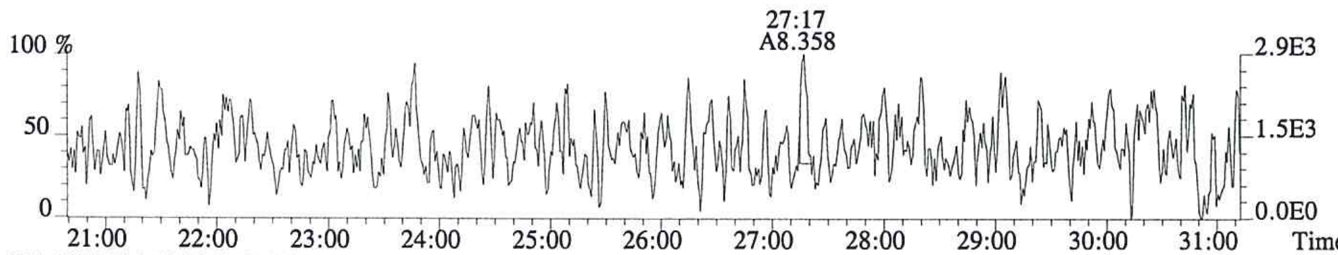
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



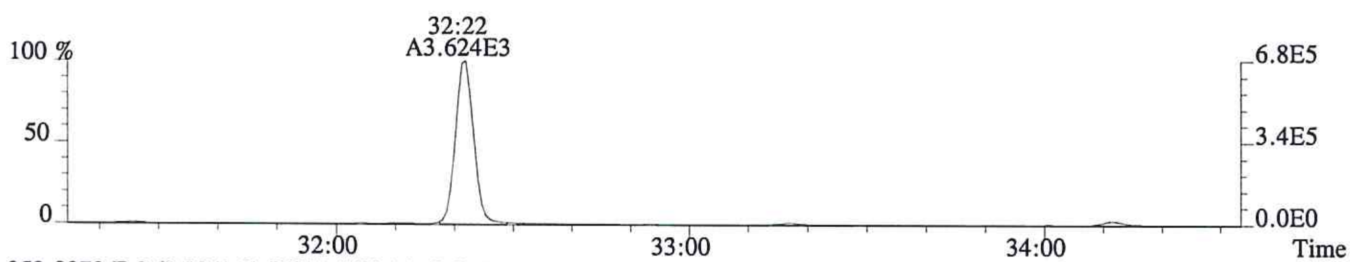
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



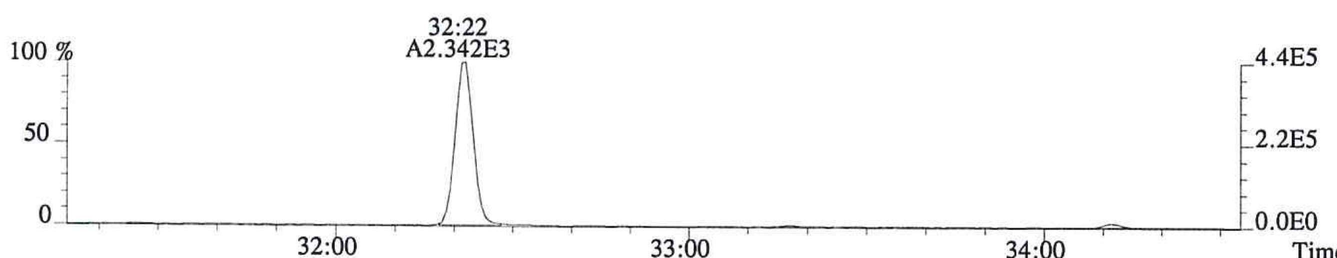
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



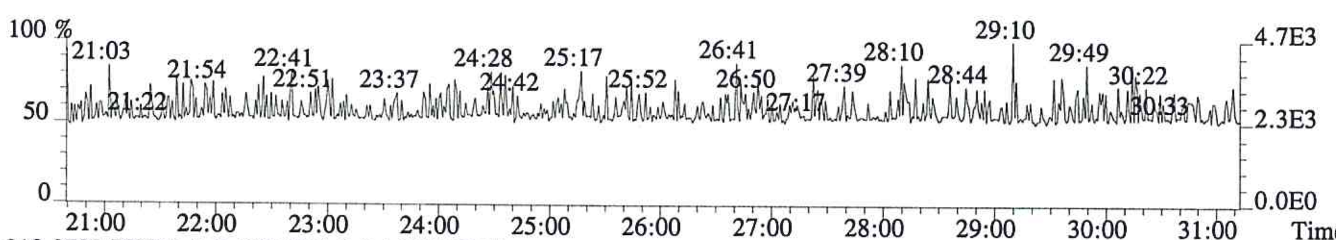
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



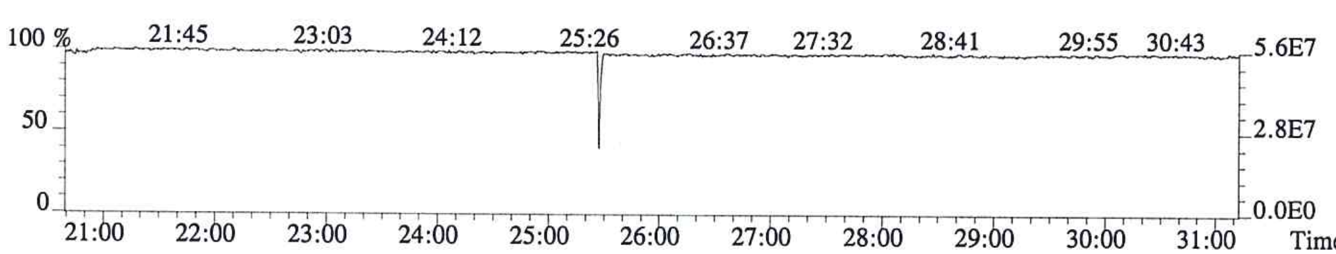
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

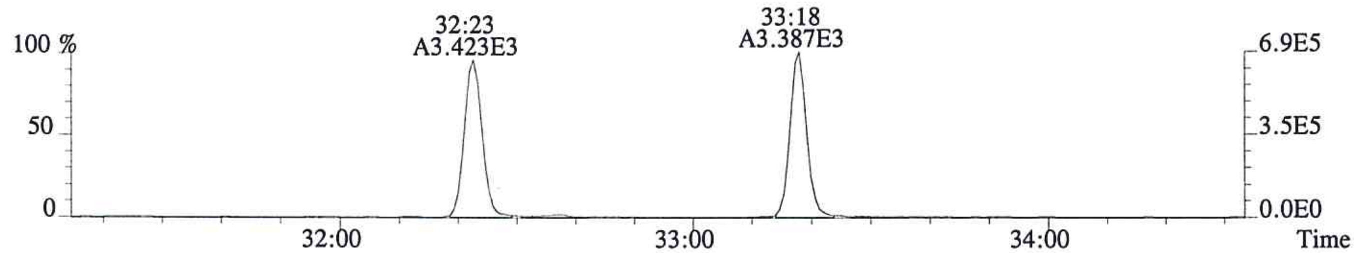


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

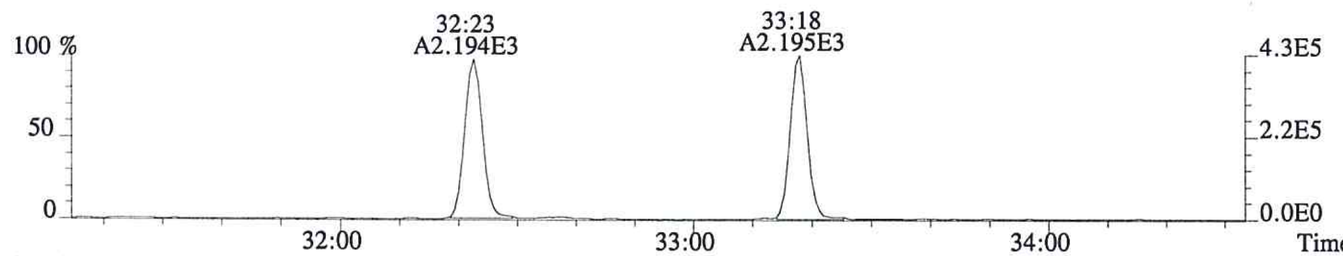


File:P604017 #1-299 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

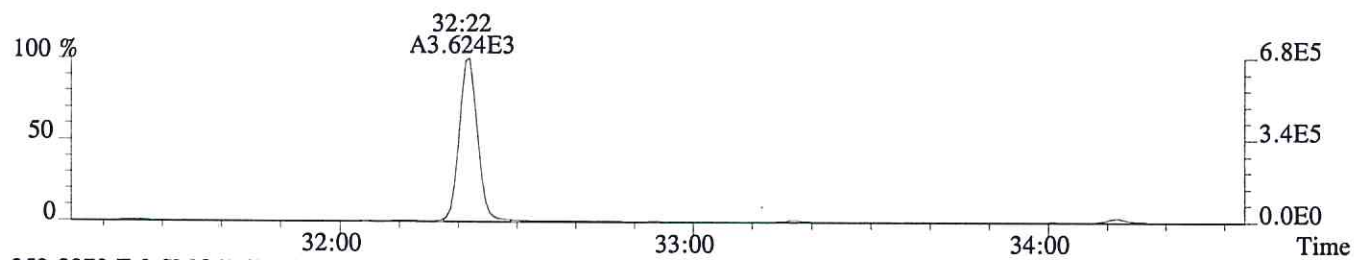
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



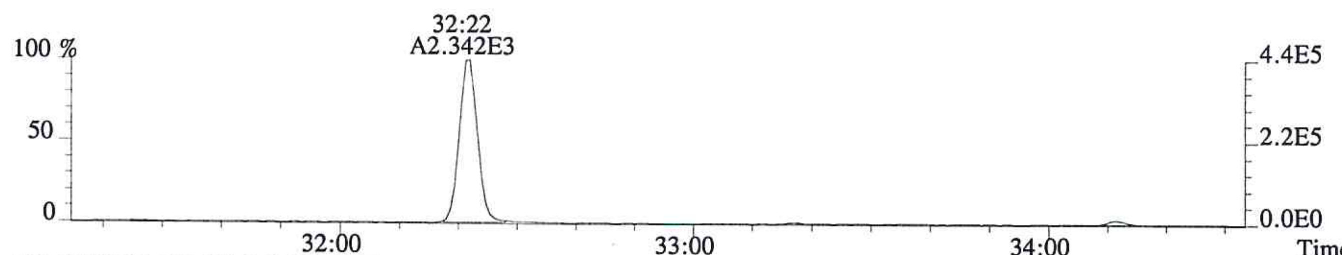
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



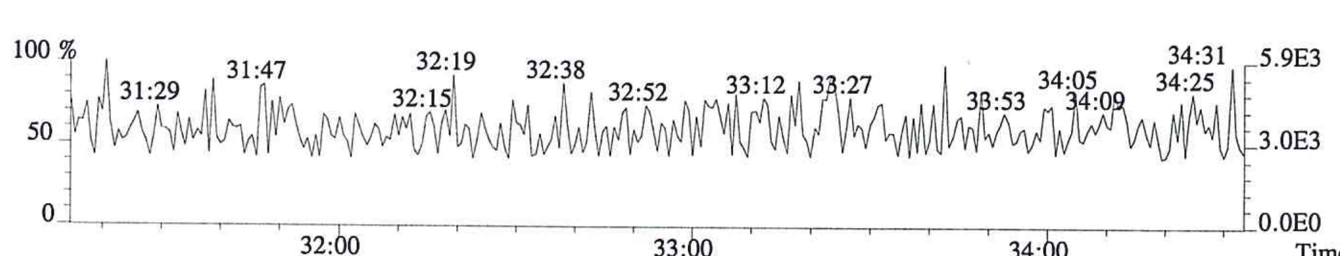
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



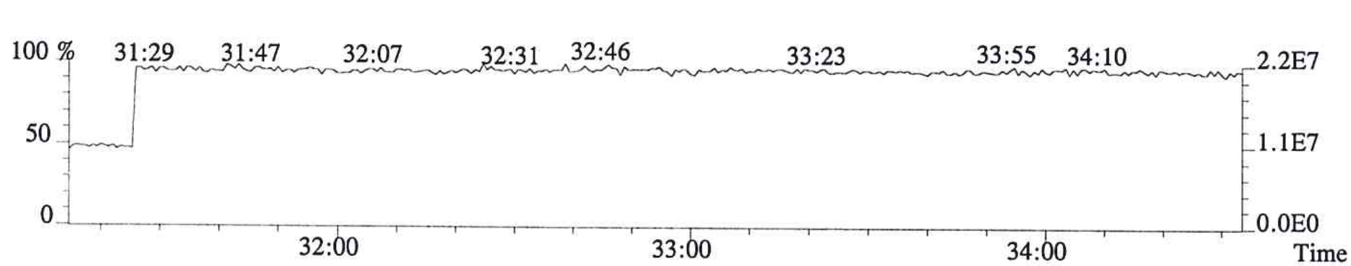
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



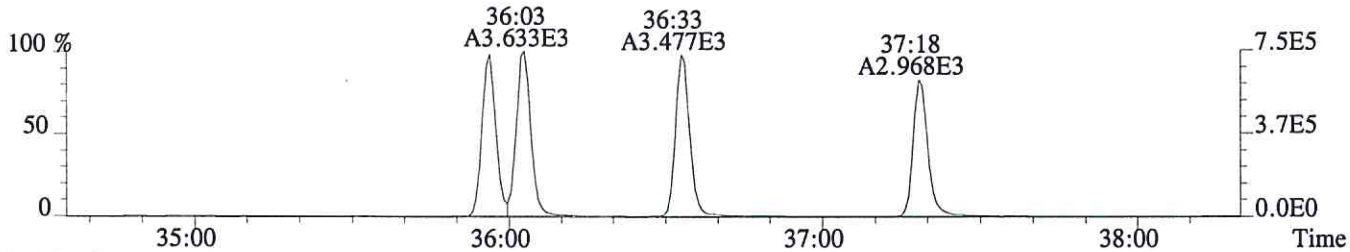
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



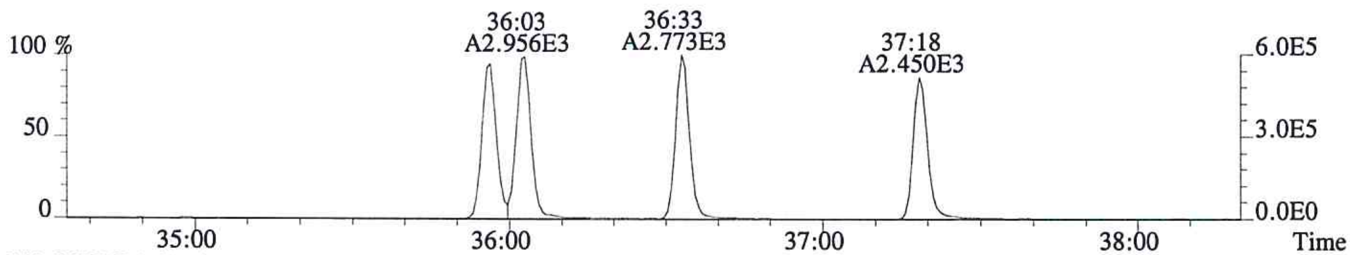
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



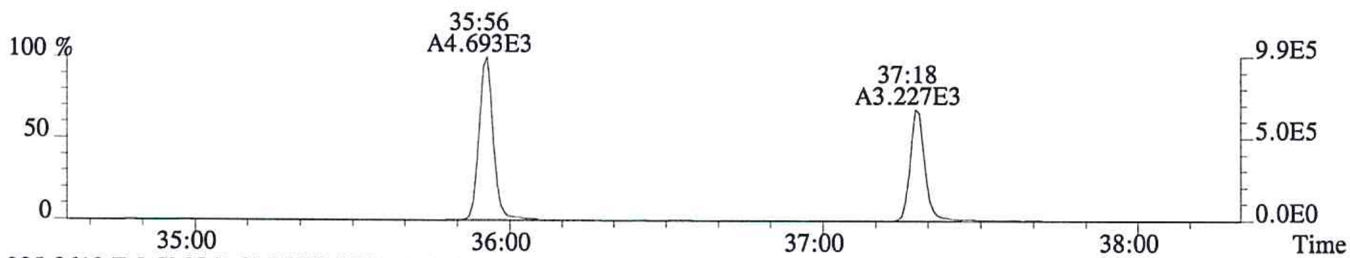
File:P604017 #1-337 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



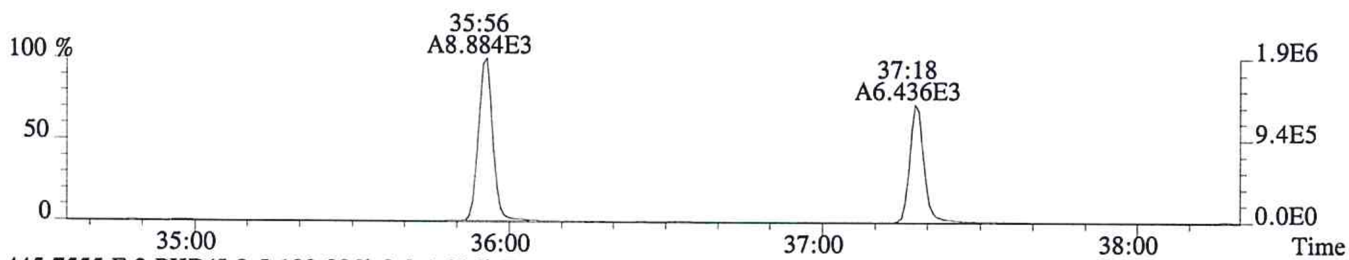
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



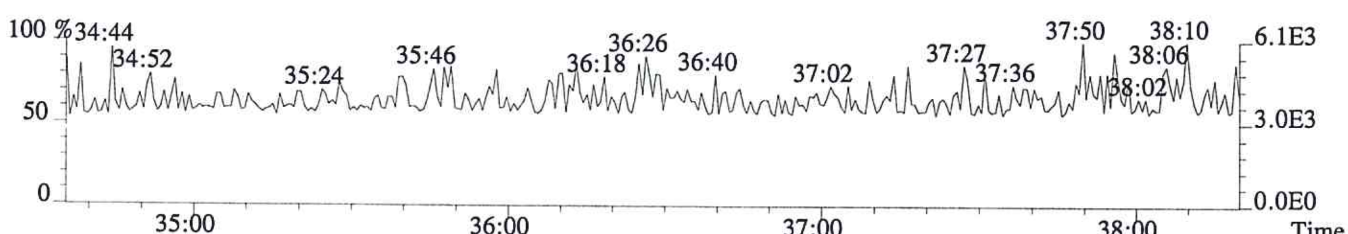
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



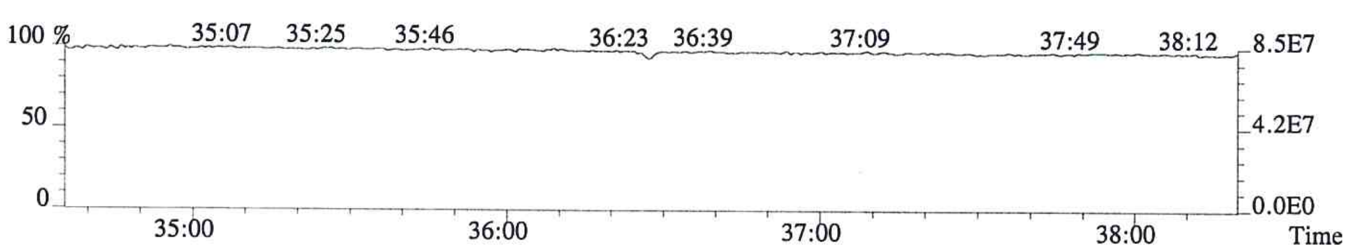
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



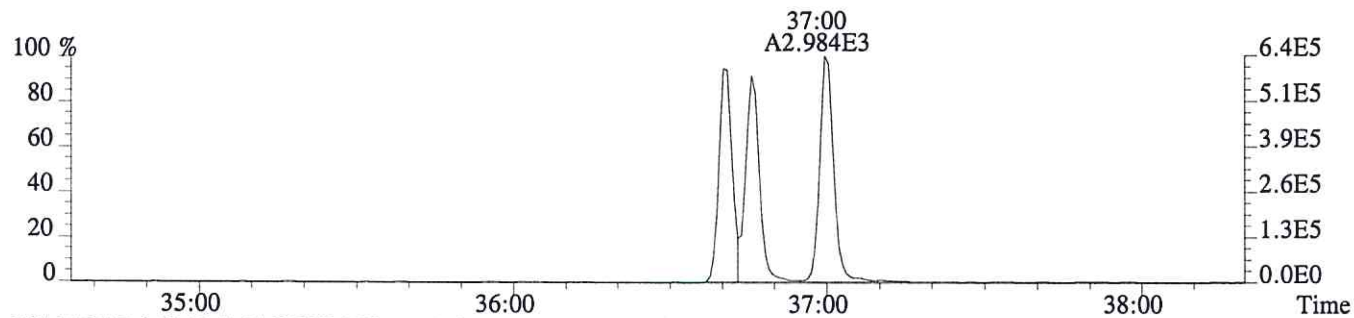
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



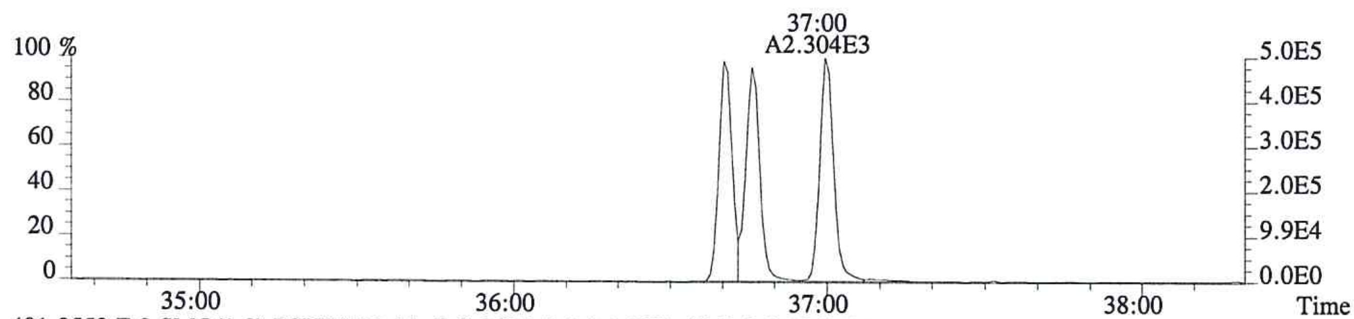
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



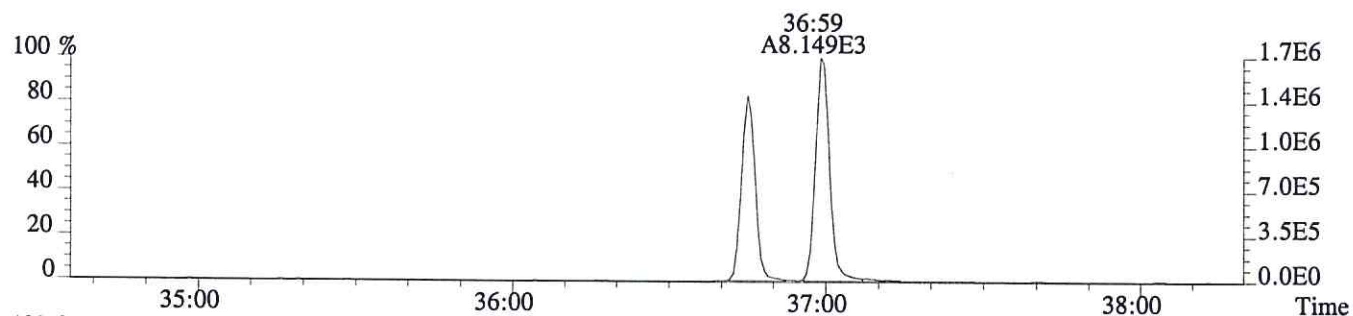
File:P604017 #1-337 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



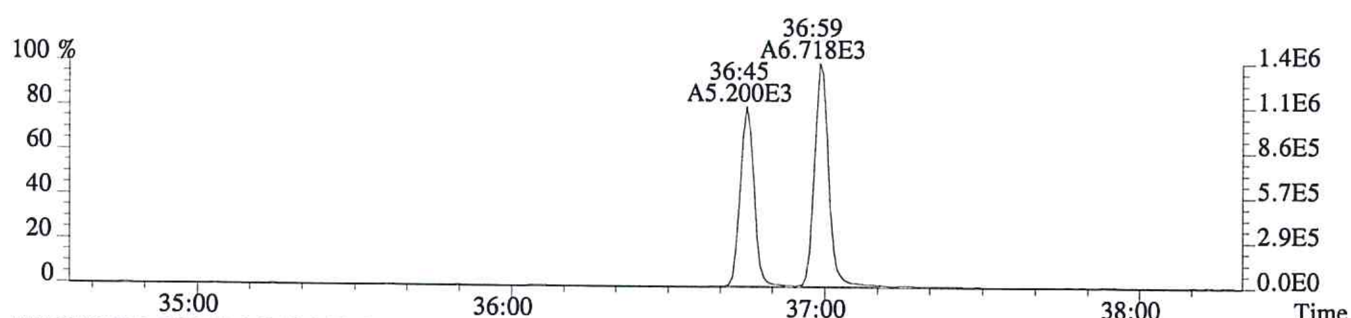
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



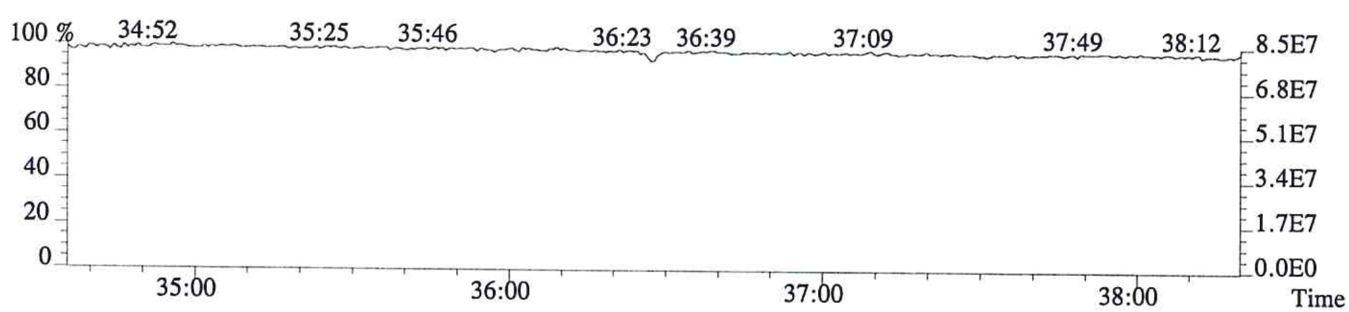
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P603991 Circle one: Beginning / Ending

Date: 06/25/16-06/26/16

SPME

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: Jc Second QC: LKL

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
BAD INJECTION	EQ1600219-01*	P603992	25-JUN-16	18:59:09
METHOD BLANK	EQ1600219-01	P603993	25-JUN-16	19:48:09
04052016SJPW10	E1600282-006	P603994	25-JUN-16	20:37:12
03162016SJGW1	E1600326-001	P603995	25-JUN-16	21:26:14
04072016SJGW1	E1600326-002	P603996	25-JUN-16	22:15:14
04072016SJGW2	E1600326-003	P603997	25-JUN-16	23:04:16
04072016SJGW10	E1600326-004	P603998	25-JUN-16	23:53:17
04072016SJGW11	E1600326-005	P603999	26-JUN-16	00:42:18
04072016SJGW12	E1600326-006	P604000	26-JUN-16	01:31:21
04072016SJGW13	E1600326-007	P604001	26-JUN-16	02:20:22

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
LCS	EQ1600219-02	P604002	26-JUN-16	03:09:23
DLCS	EQ1600219-03	P604003	26-JUN-16	03:58:24

E1600326

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Sample List Report | **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160625B.SPL — Page 1 of 2

Last Modified: Friday, July 01, 2016 08:52:16 Eastern Daylight Time

Printed: Friday, July 01, 2016 08:52:25 Eastern Daylight Time — Page Position (1, 1)

opus4: P603991res ; P603991res2

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	17:21	P603990	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 16:28
2		18:10	P603991	173638	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		18:59	P603992	EQ1600219-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		Bad injection
4		19:48	P603993	EQ1600219-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		20:37	P603994	E1600282-006	E1600282-006	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		21:26	P603995	E1600326-001	E1600326-001	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		22:15	P603996	E1600326-002	E1600326-002	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		23:04	P603997	E1600326-003	E1600326-003	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		23:53	P603998	E1600326-004	E1600326-004	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10	06/26/16	00:42	P603999	E1600326-005	E1600326-005	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		01:31	P604000	E1600326-006	E1600326-006	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		02:20	P604001	E1600326-007	E1600326-007	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		03:09	P604002	EQ1600219-02	LCS	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		03:58	P604003	EQ1600219-03	DLCS	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15		04:55	P604004	173638	CS3	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS check 08:21
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

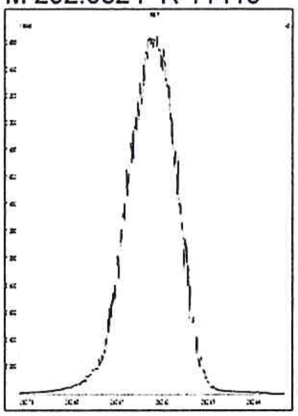
gc 07/01/16

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

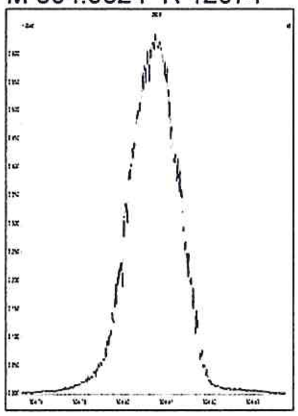
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

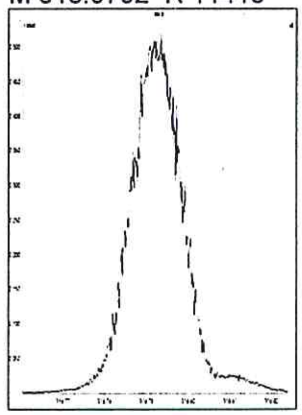
M 292.9824 R 11415



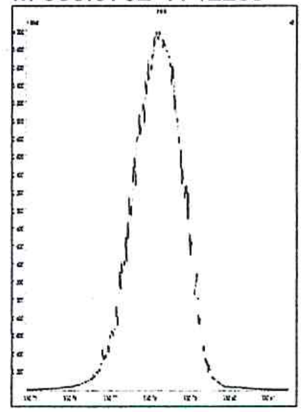
M 304.9824 R 12074



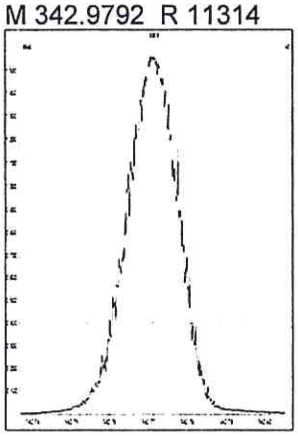
M 318.9792 R 11416



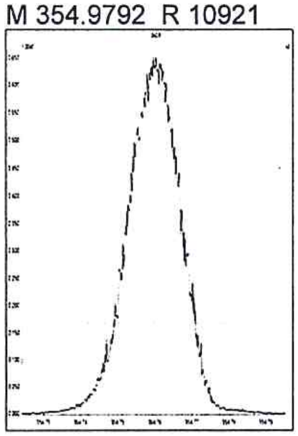
M 330.9792 R 12259



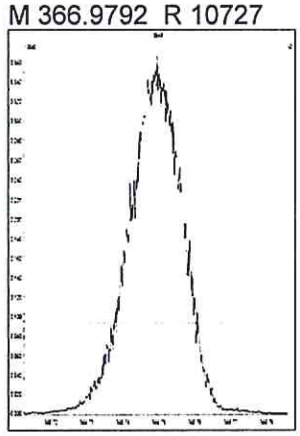
M 342.9792 R 11314



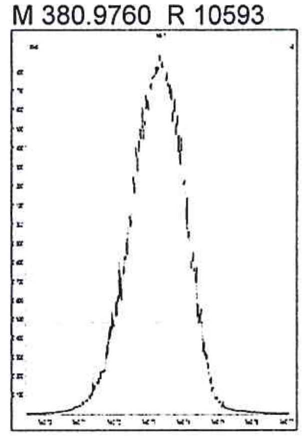
M 354.9792 R 10921



M 366.9792 R 10727



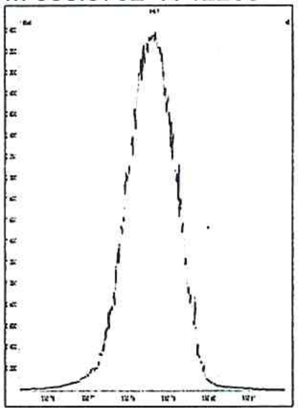
M 380.9760 R 10593



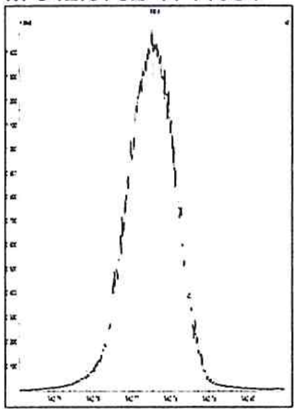
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

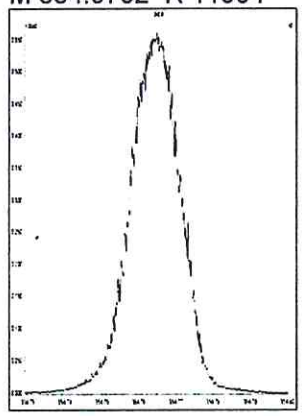
M 330.9792 R 12253



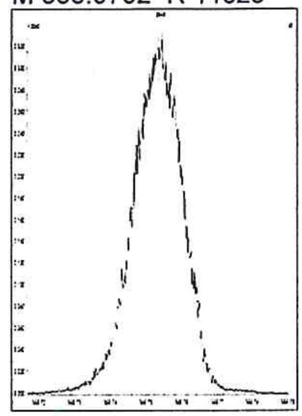
M 342.9792 R 11684



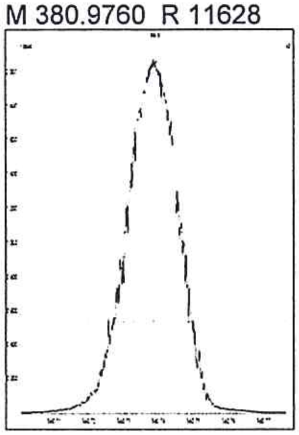
M 354.9792 R 11904



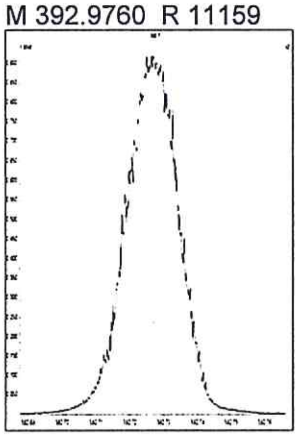
M 366.9792 R 11523



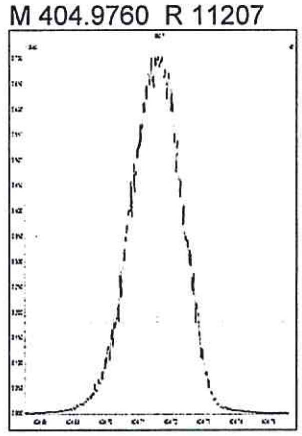
M 380.9760 R 11628



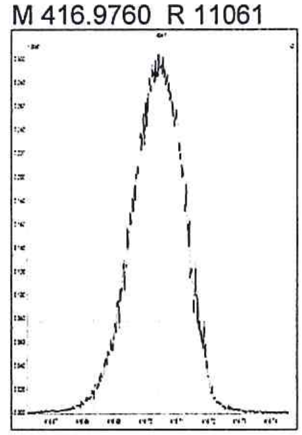
M 392.9760 R 11159



M 404.9760 R 11207



M 416.9760 R 11061

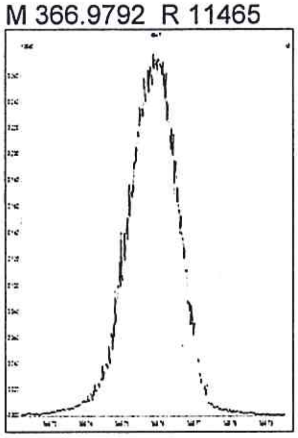


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795** Page 1 of 1

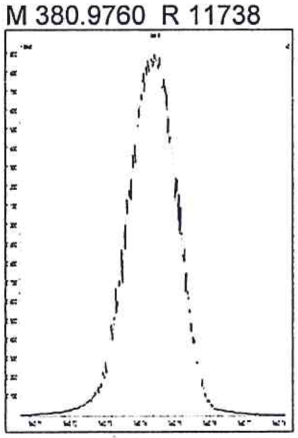
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

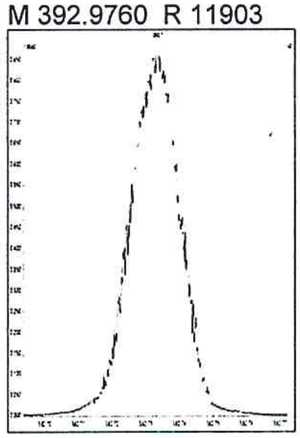
M 366.9792 R 11465



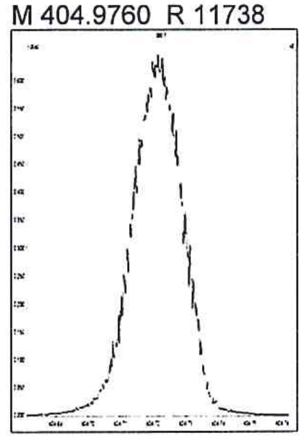
M 380.9760 R 11738



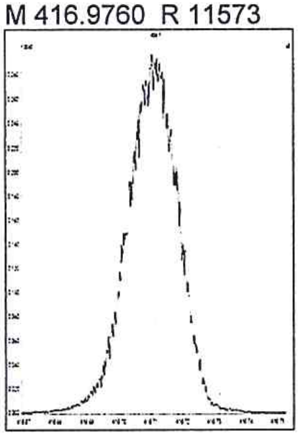
M 392.9760 R 11903



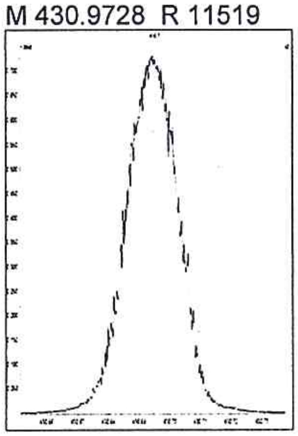
M 404.9760 R 11738



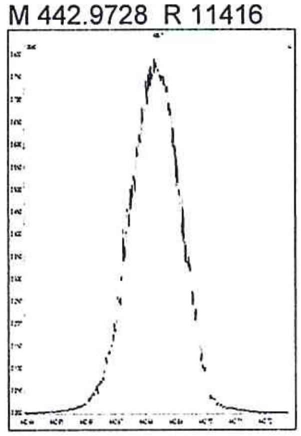
M 416.9760 R 11573



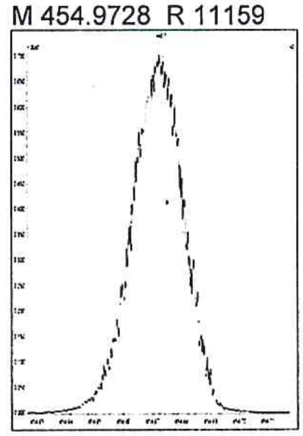
M 430.9728 R 11519



M 442.9728 R 11416



M 454.9728 R 11159

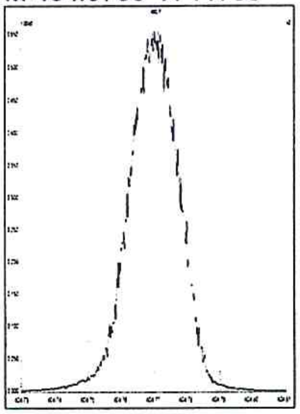


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

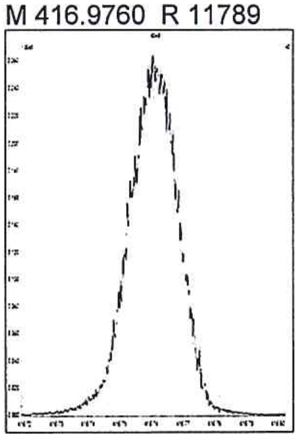
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

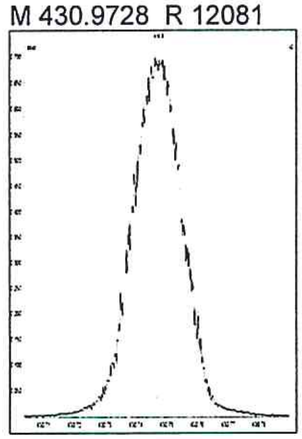
M 404.9760 R 11735



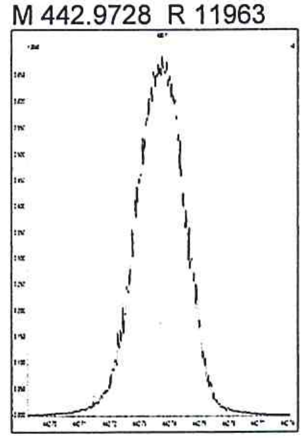
M 416.9760 R 11789



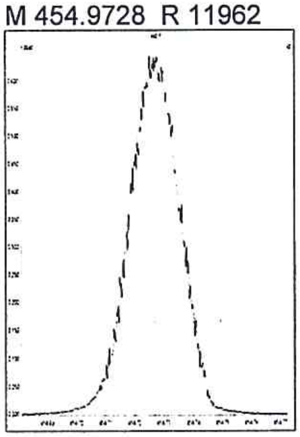
M 430.9728 R 12081



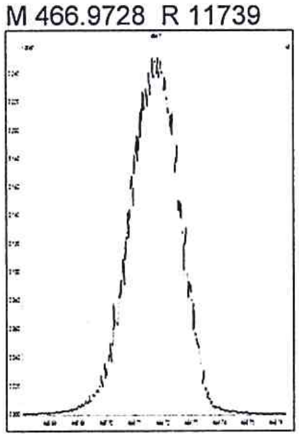
M 442.9728 R 11963



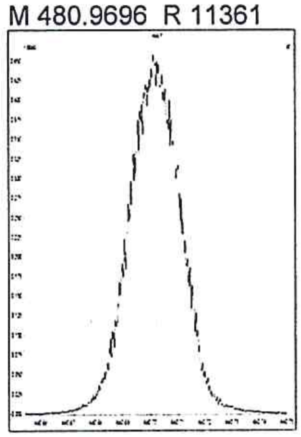
M 454.9728 R 11962



M 466.9728 R 11739



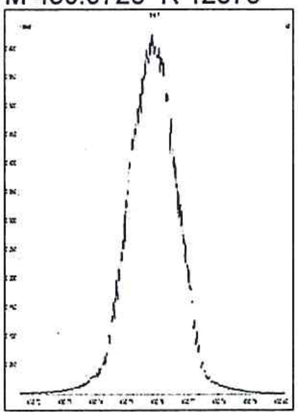
M 480.9696 R 11361



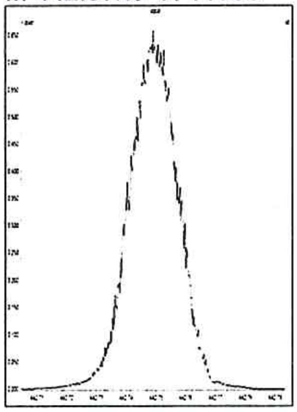
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time

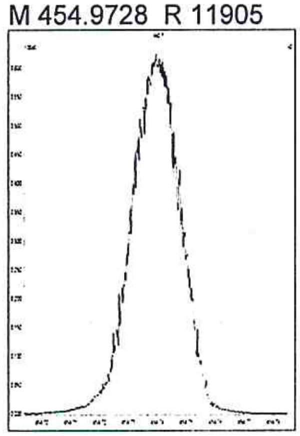
M 430.9728 R 12376



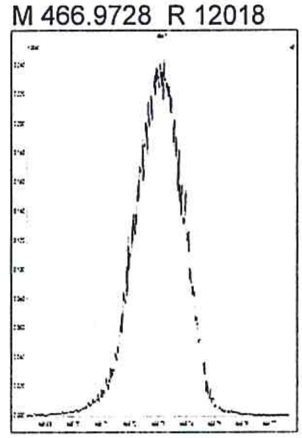
M 442.9728 R 11960



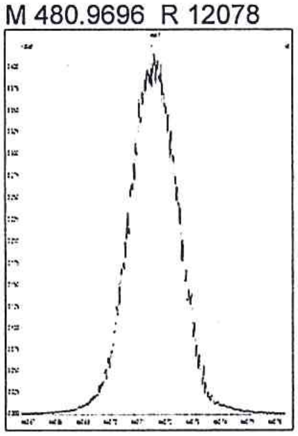
M 454.9728 R 11905



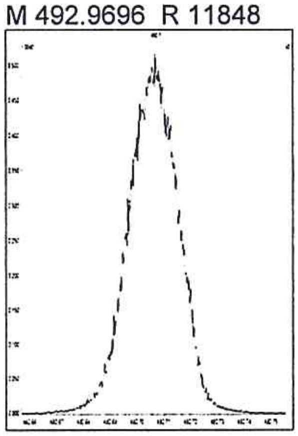
M 466.9728 R 12018



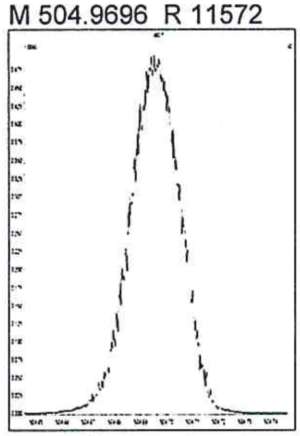
M 480.9696 R 12078



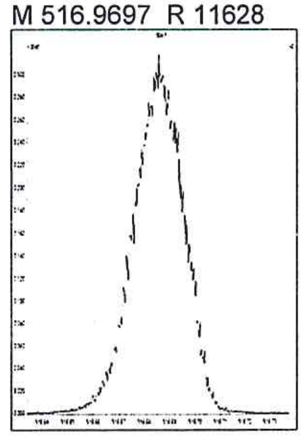
M 492.9696 R 11848



M 504.9696 R 11572



M 516.9697 R 11628

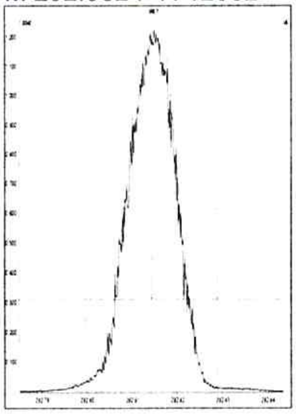


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

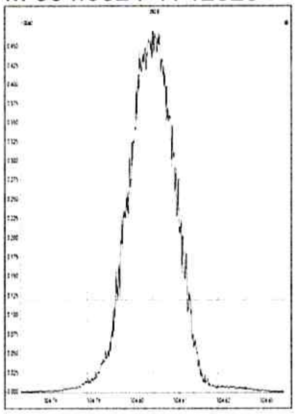
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:21:50 Eastern Daylight Time

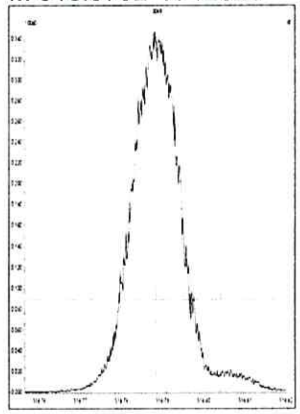
M 292.9824 R 12562



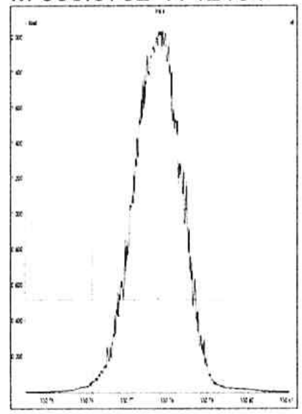
M 304.9824 R 12629



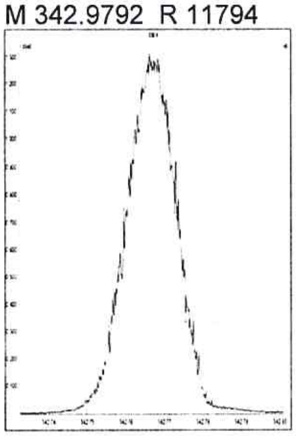
M 318.9792 R 12020



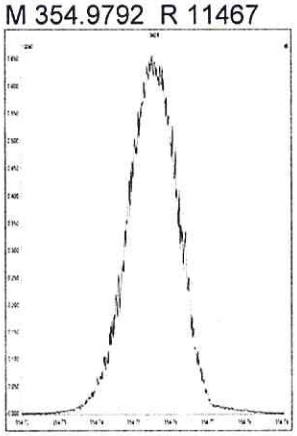
M 330.9792 R 12134



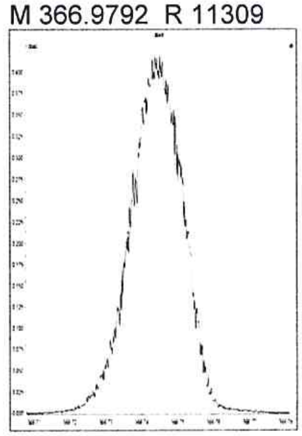
M 342.9792 R 11794



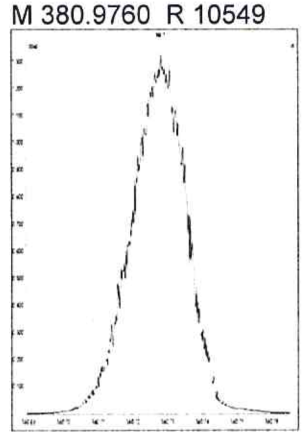
M 354.9792 R 11467



M 366.9792 R 11309

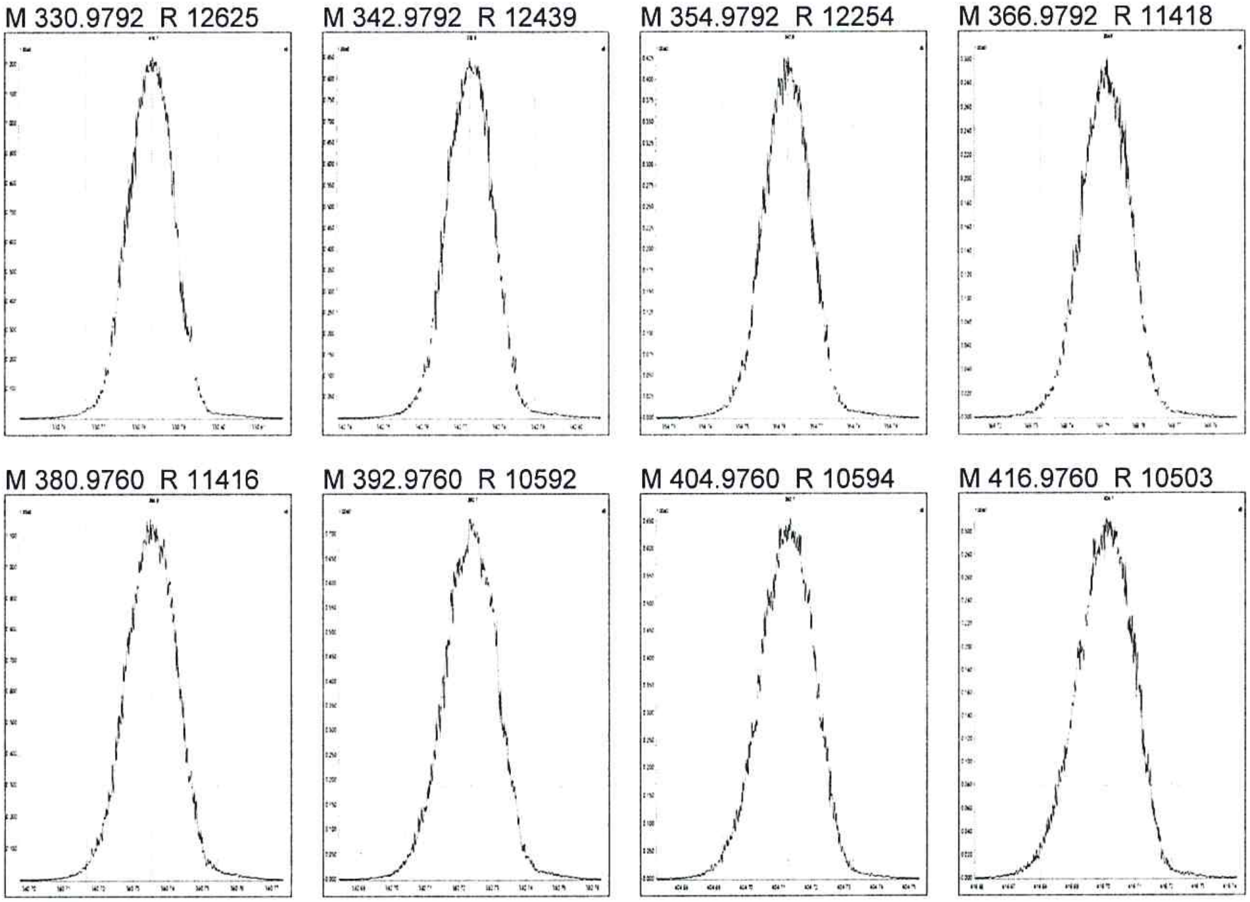


M 380.9760 R 10549



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:23:16 Eastern Daylight Time

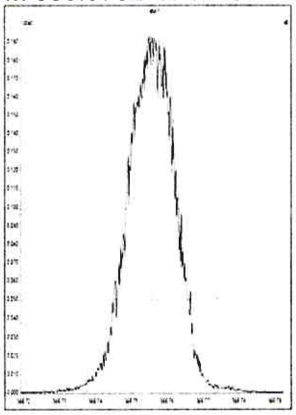


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

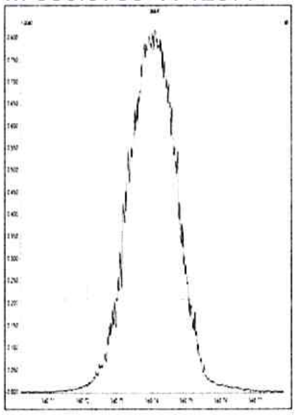
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:24:38 Eastern Daylight Time

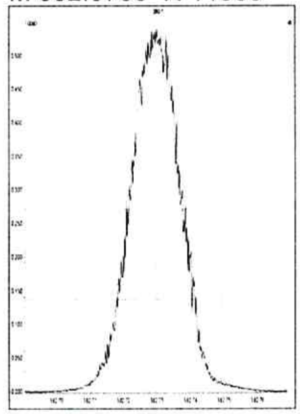
M 366.9792 R 12497



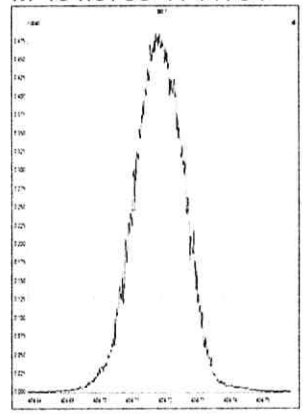
M 380.9760 R 12377



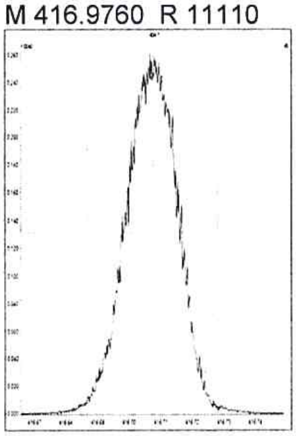
M 392.9760 R 11960



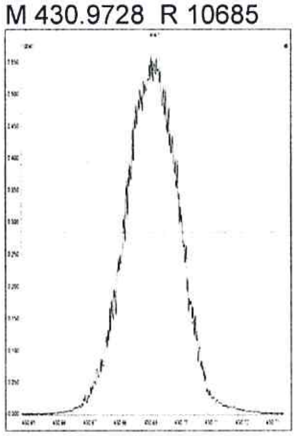
M 404.9760 R 11794



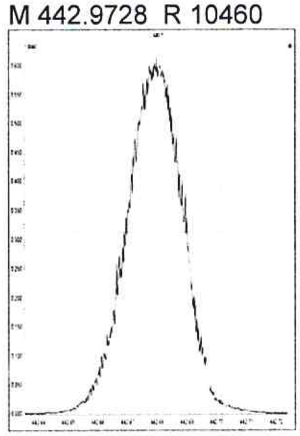
M 416.9760 R 11110



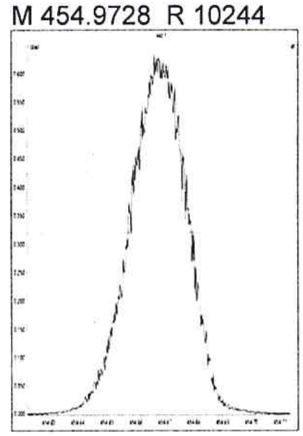
M 430.9728 R 10685



M 442.9728 R 10460



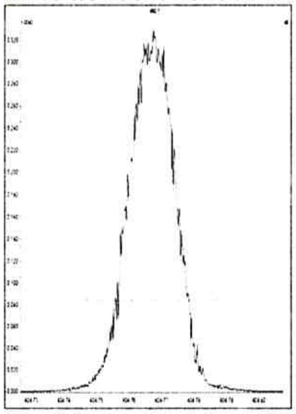
M 454.9728 R 10244



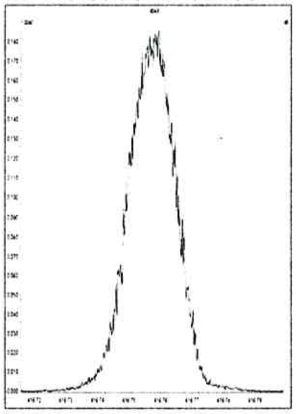
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:25:52 Eastern Daylight Time

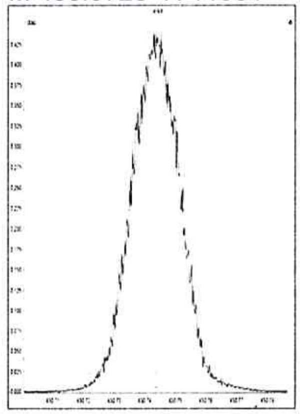
M 404.9760 R 12693



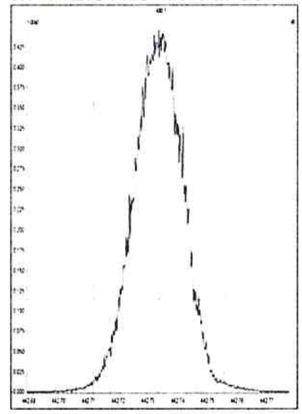
M 416.9760 R 12438



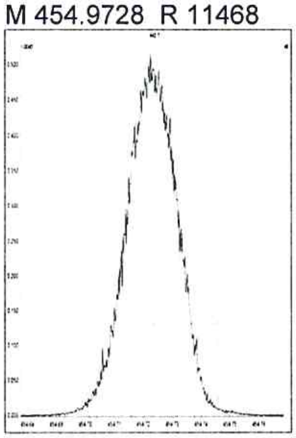
M 430.9728 R 11961



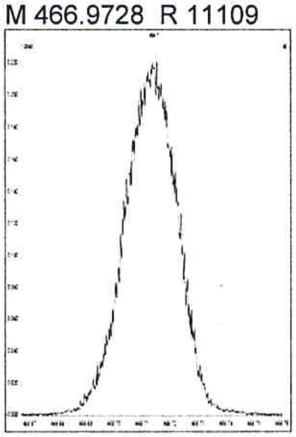
M 442.9728 R 11739



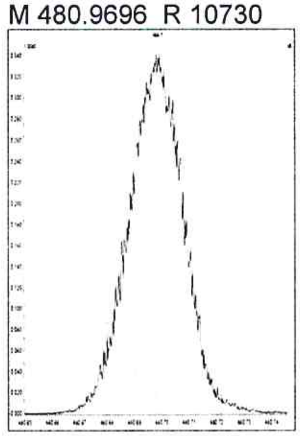
M 454.9728 R 11468



M 466.9728 R 11109



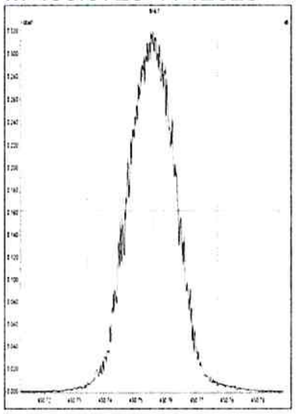
M 480.9696 R 10730



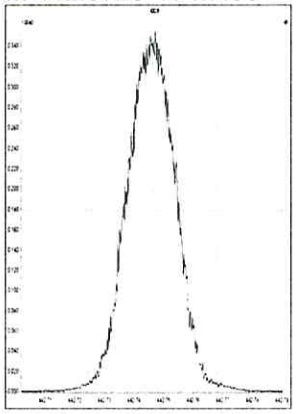
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:27:02 Eastern Daylight Time

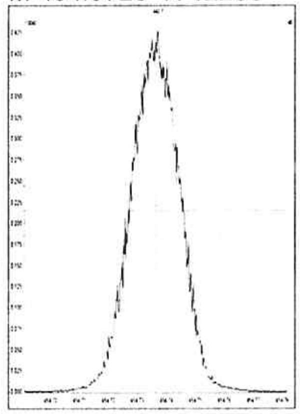
M 430.9728 R 12820



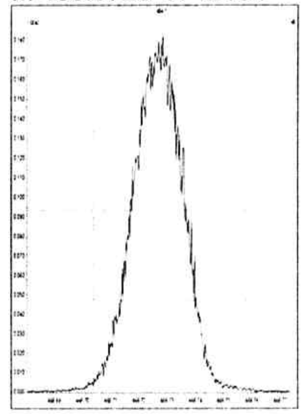
M 442.9728 R 12498



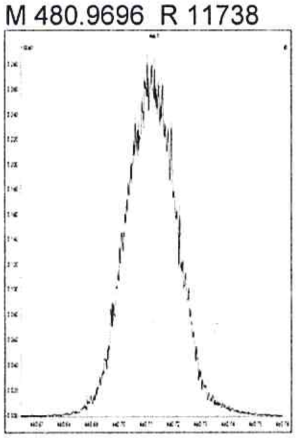
M 454.9728 R 12255



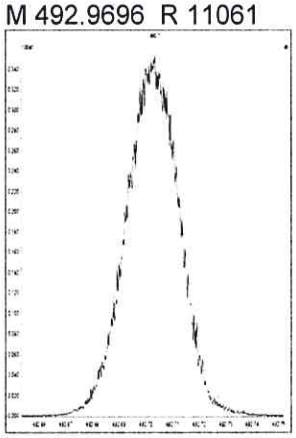
M 466.9728 R 12194



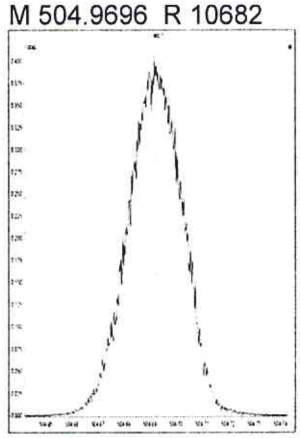
M 480.9696 R 11738



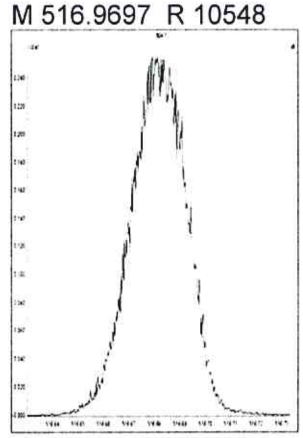
M 492.9696 R 11061



M 504.9696 R 10682



M 516.9697 R 10548



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

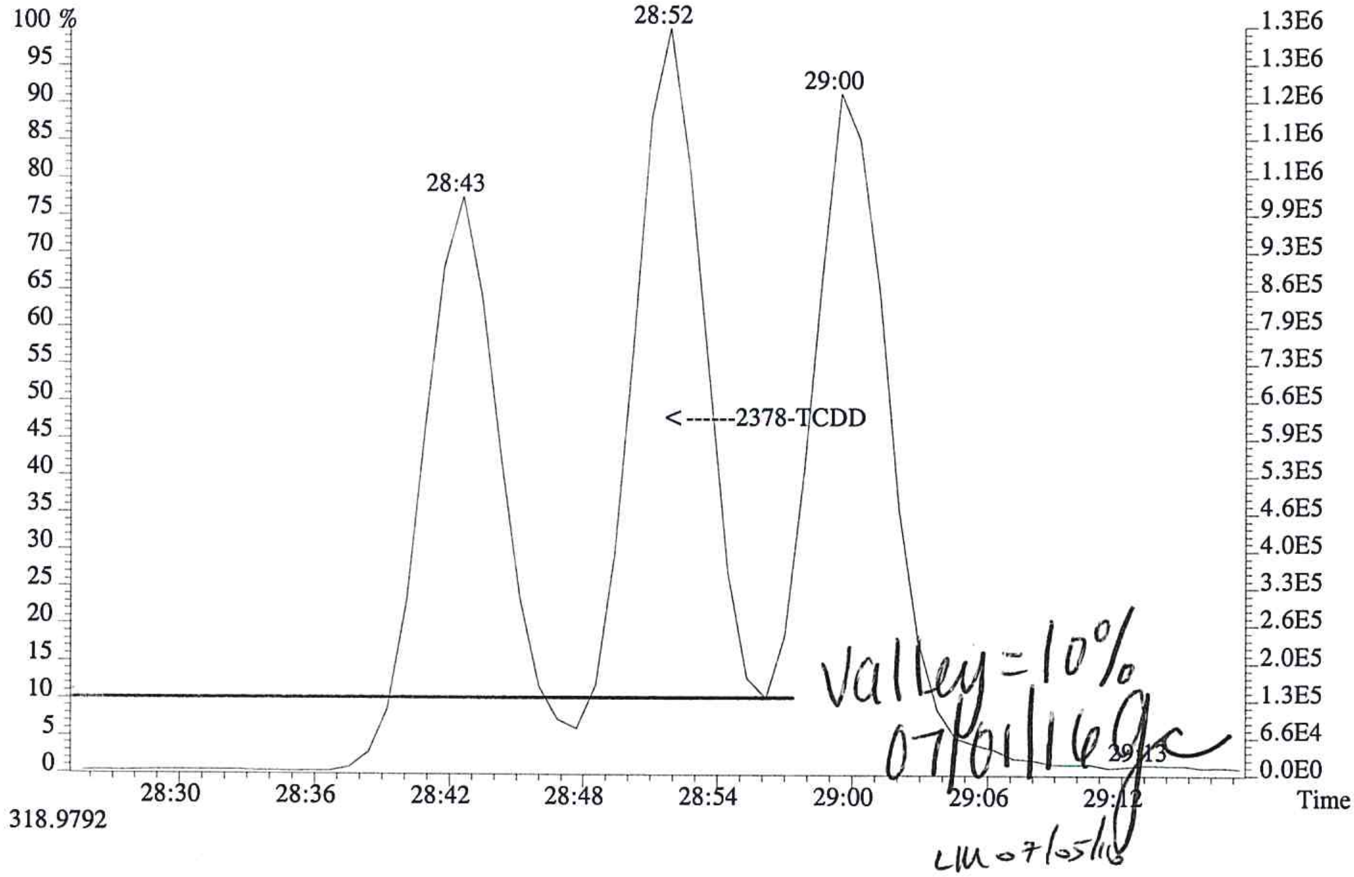
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: ______ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P603990
Date Analyzed: 25-JUN-2016
Time Analyzed: 17:21:07

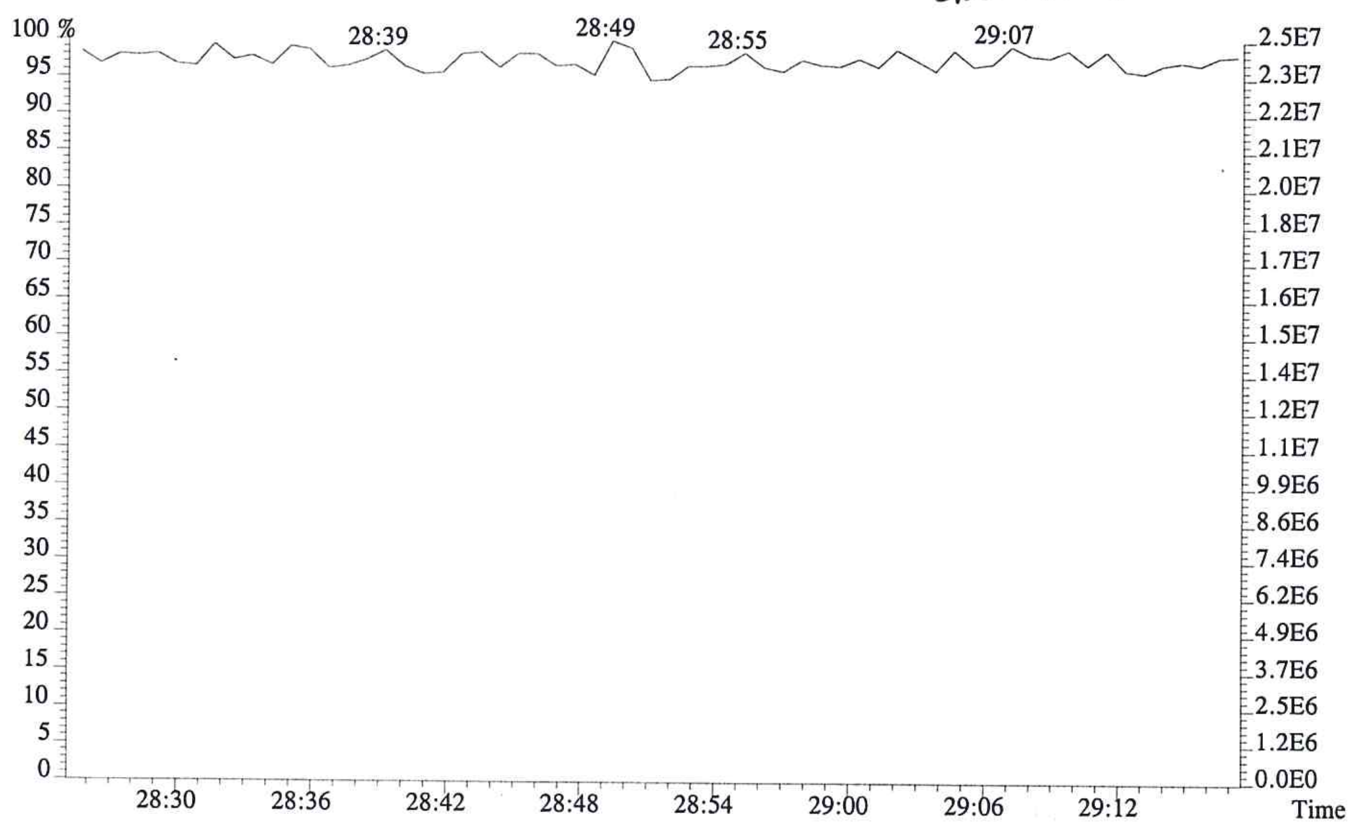
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:40	30:04
TCDD	25:32	29:52
PeCDF	29:56	34:13
PeCDD	31:29	33:57
HxCDF	34:50	37:22
HxCDD	35:21	36:56

% Valley 2378-TCDD: 10 %

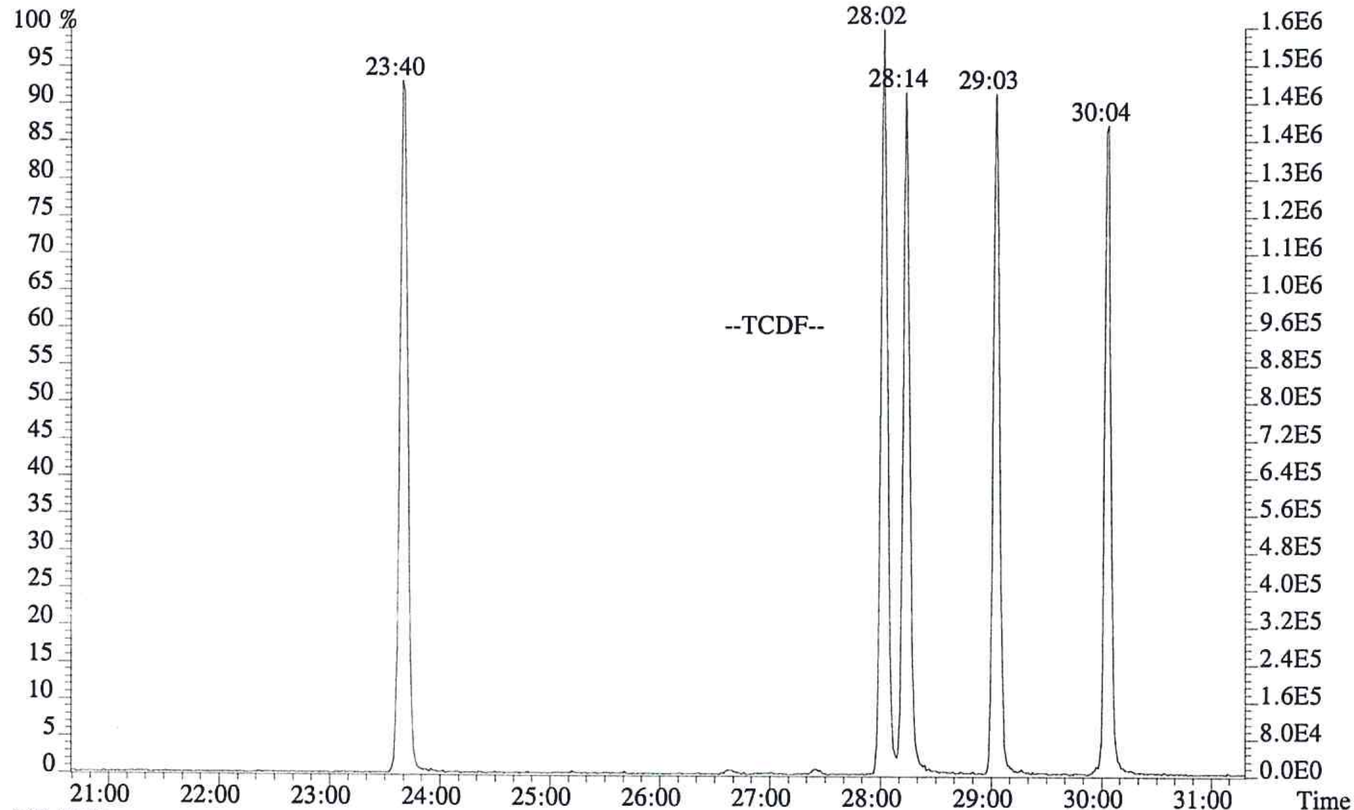
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



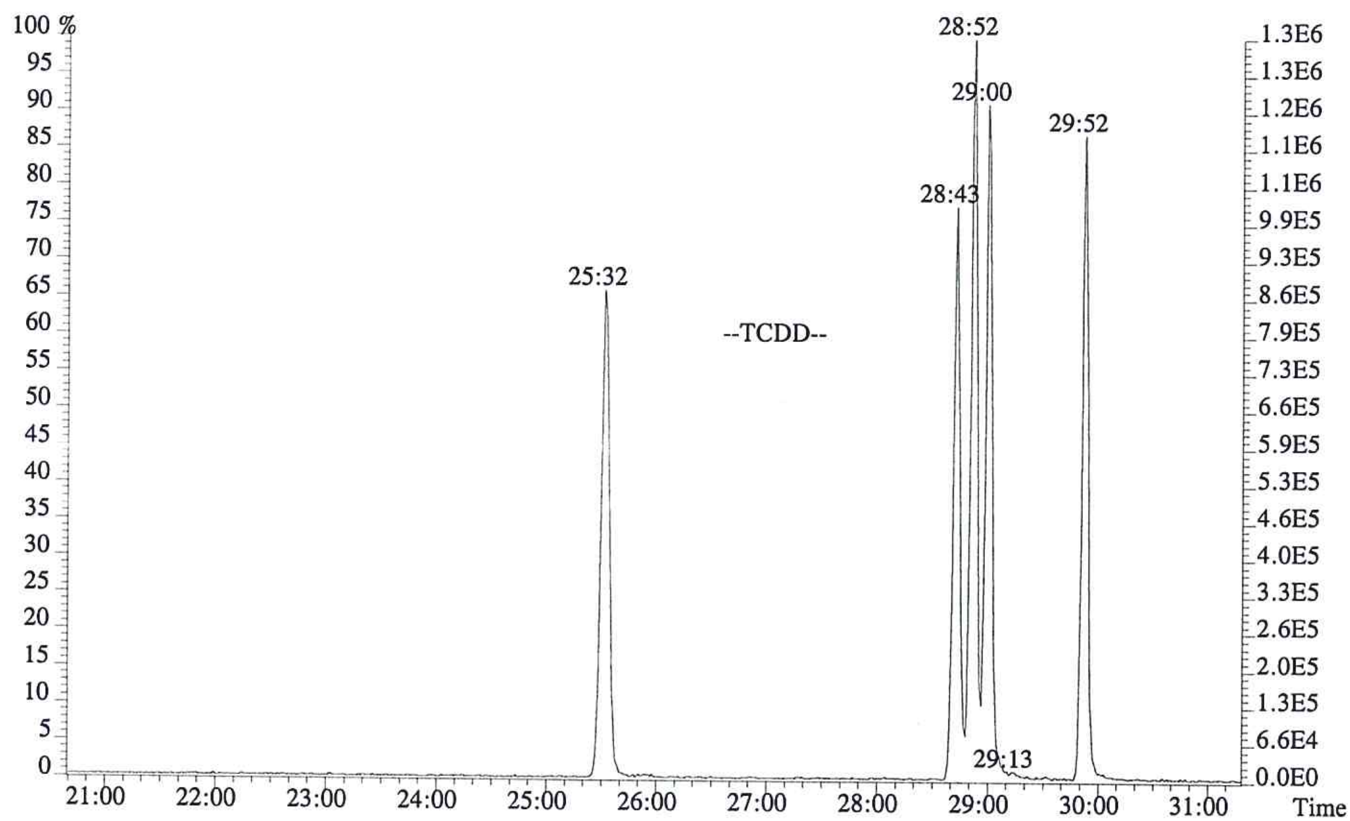
318.9792



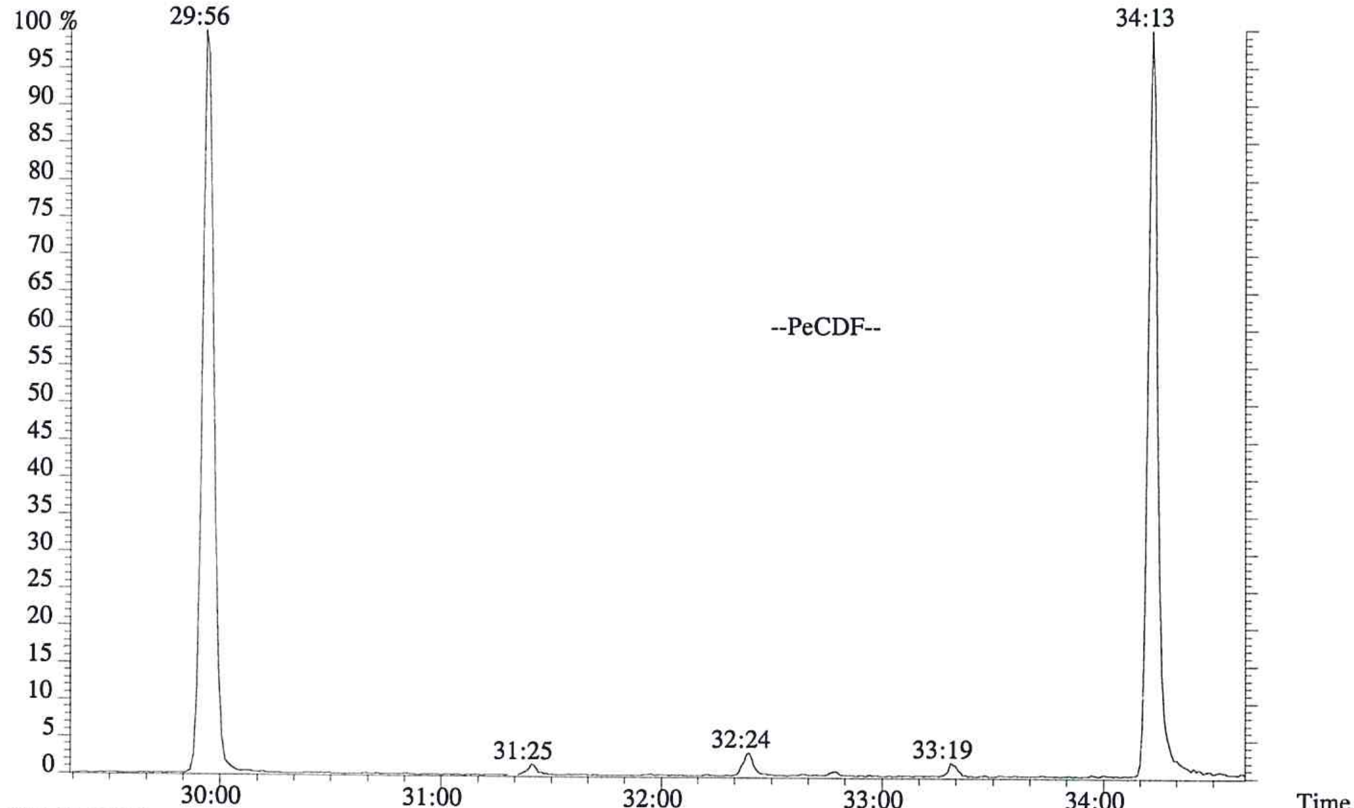
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



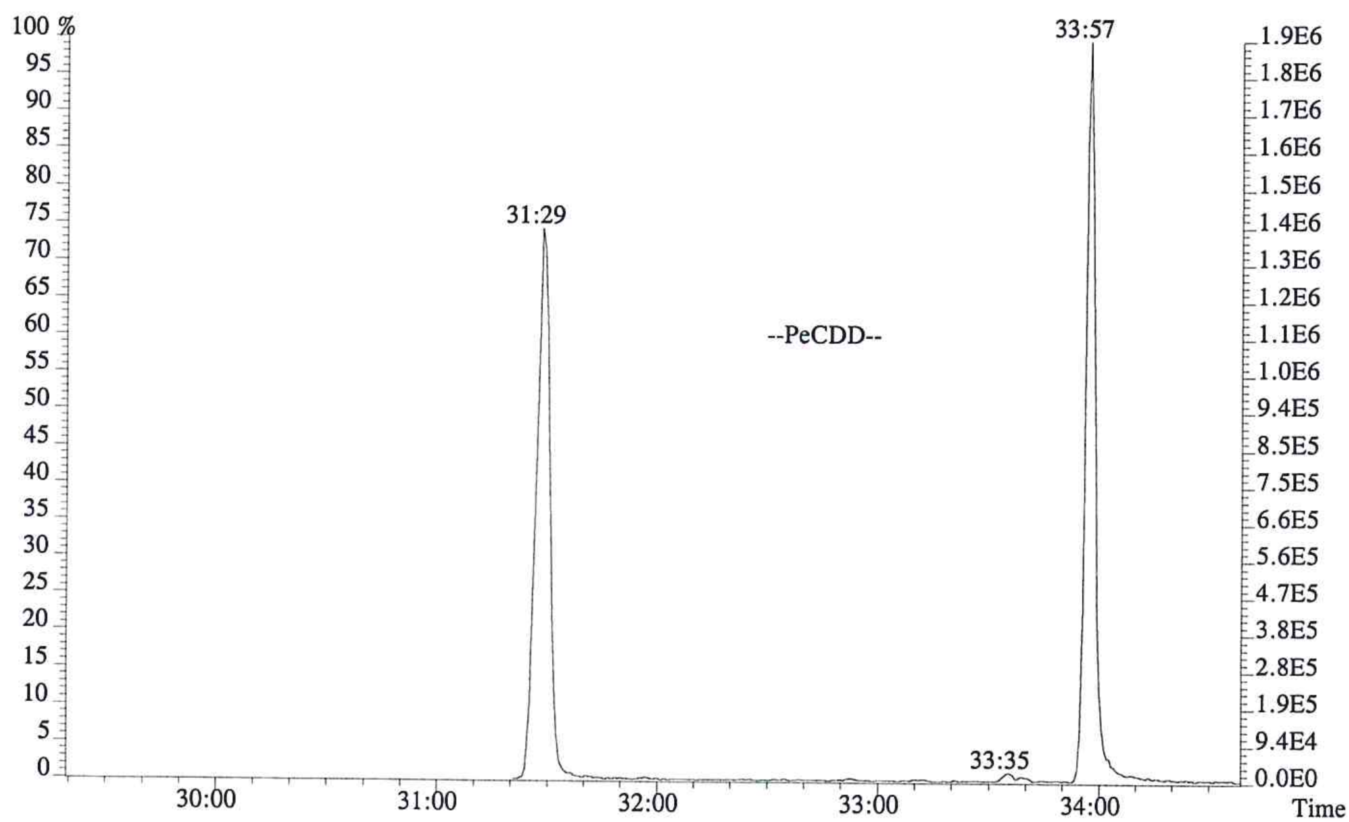
319.8965



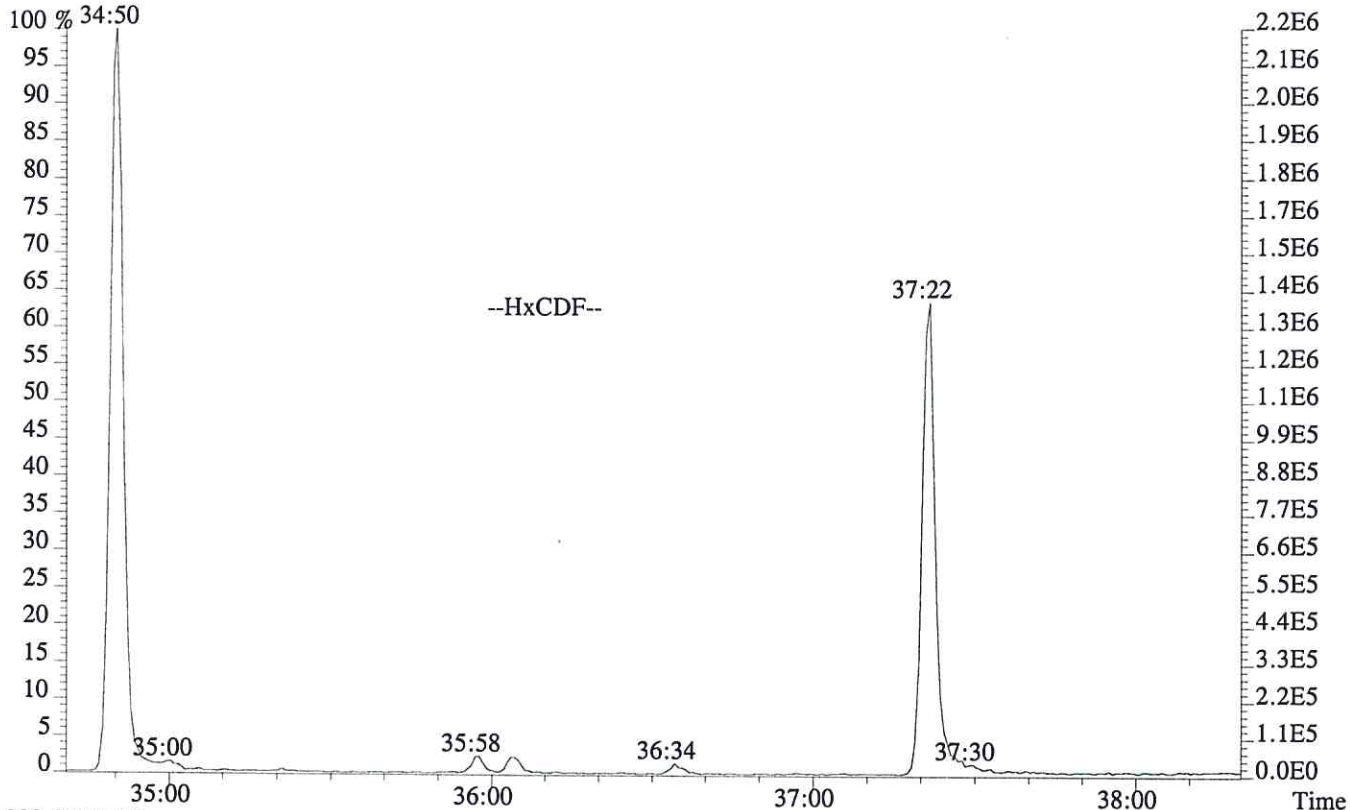
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



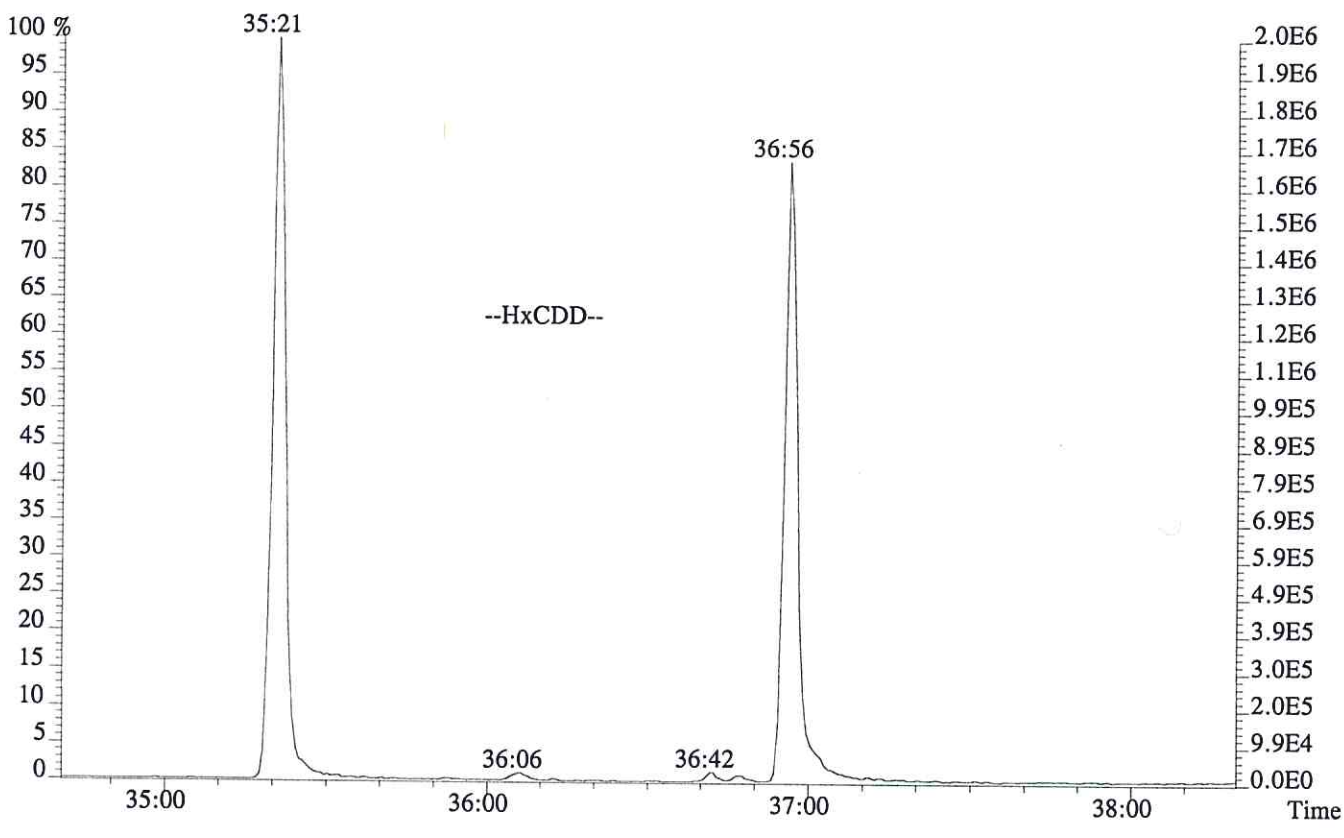
355.8546 F:2



File:P603990 #1-329 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	4.7	3.9 - 6.45	-6.5
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	4.9	4.2 - 6.0	-1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	25.0	20.5 - 30.5	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	51	41 - 60.5	1.9
13C-1,2,3,4-TCDF	M/M+2	0.78	0.65-0.89	40	35.5-70	-20.5
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	49	35.5-70	-1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38 - 65	-0.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38.5 - 65	-0.8
13C-1,2,3,7,8,9-HxCDF		0.51	0.43-0.59	50	37 - 67.5	0.5
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	2.4

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	7.317e+03	9.442e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	5.372e+04	3.478e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.621e+03	7.353e+03	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	7.876e+04	9.855e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.179e+05	7.427e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.170e+05	7.340e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.766e+04	7.400e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	6.477e+04	8.258e+04	0.78	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	5.848e+04	7.390e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	6.187e+04	7.805e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	7.014e+04	5.687e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.354e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	1.20e+03	1.1e+03	1.69e+06	3.98e+03	4.2e+02
3	2,3,4,7,8-PeCDF	1.05e+07	6.46e+03	1.6e+03	6.82e+06	1.05e+04	6.5e+02
11	2,3,7,8-TCDD	1.05e+06	1.33e+03	7.9e+02	1.39e+06	1.12e+03	1.2e+03
18	13C-2,3,7,8-TCDF	1.41e+07	5.64e+03	2.5e+03	1.78e+07	2.72e+03	6.5e+03
19	13C-1,2,3,7,8-PeCDF	2.17e+07	2.08e+04	1.0e+03	1.36e+07	1.43e+04	9.6e+02
20	13C-2,3,4,7,8-PeCDF	2.28e+07	2.08e+04	1.1e+03	1.43e+07	1.43e+04	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	7.47e+06	1.48e+03	5.0e+03	1.45e+07	2.10e+03	6.9e+03
26	13C-1,2,3,4-TCDF	1.06e+07	5.64e+03	1.9e+03	1.34e+07	2.72e+03	4.9e+03
27	13C-2,3,7,8-TCDD	1.08e+07	8.37e+03	1.3e+03	1.37e+07	3.50e+03	3.9e+03
33	13C-1,2,3,4-TCDD	1.14e+07	8.37e+03	1.4e+03	1.43e+07	3.50e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.40e+07	2.88e+03	4.8e+03	1.12e+07	9.96e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.55e+06	2.30e+03	1.1e+03			

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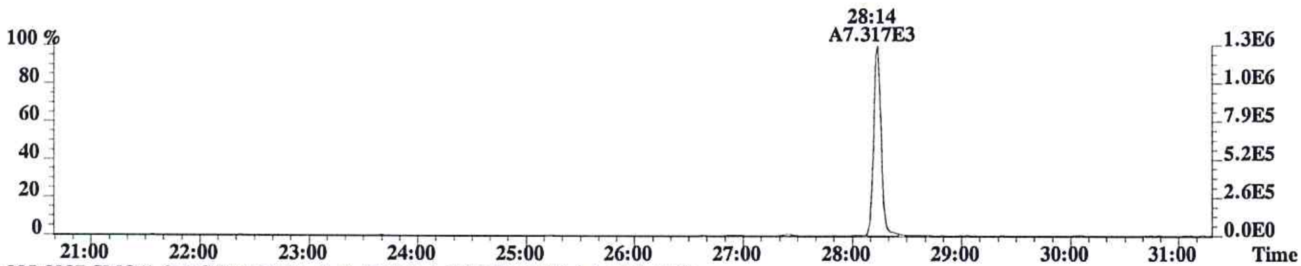
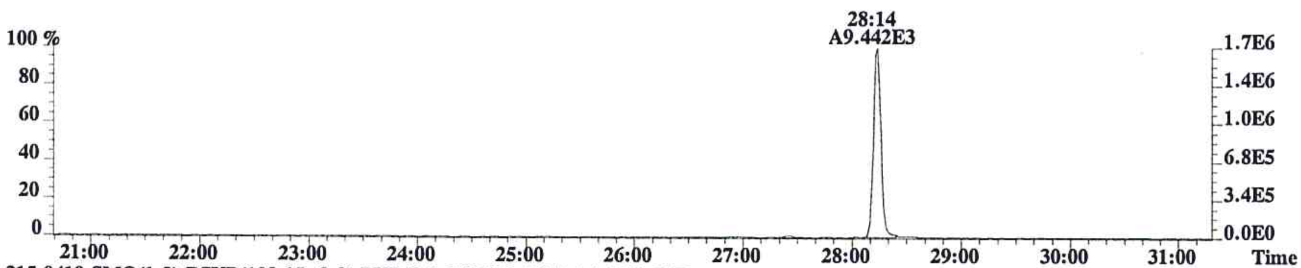
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3

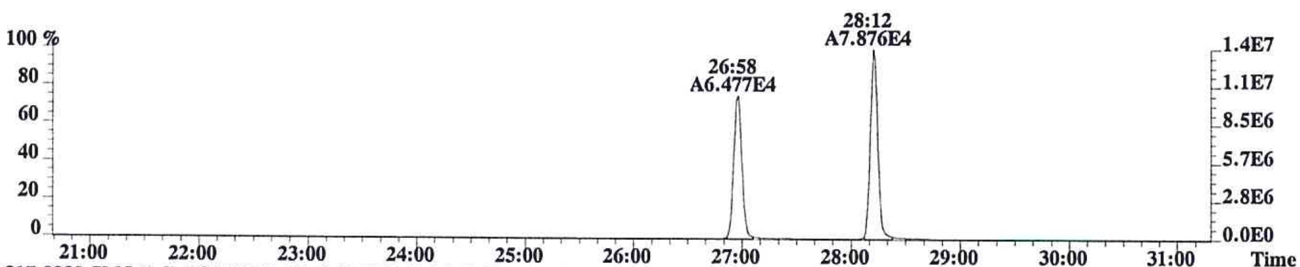
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



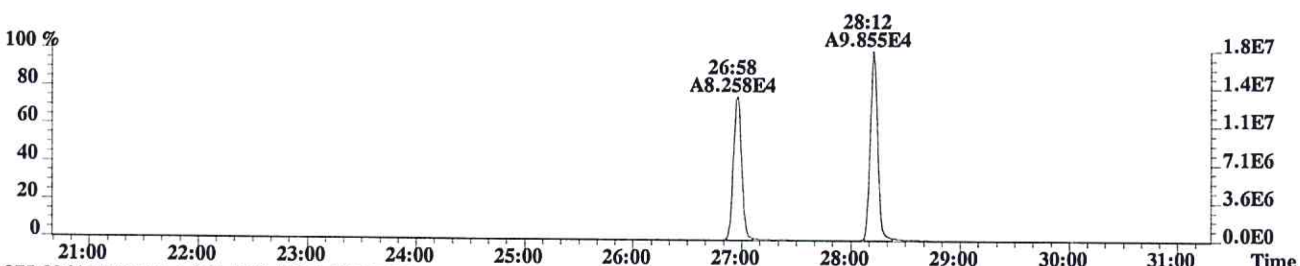
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



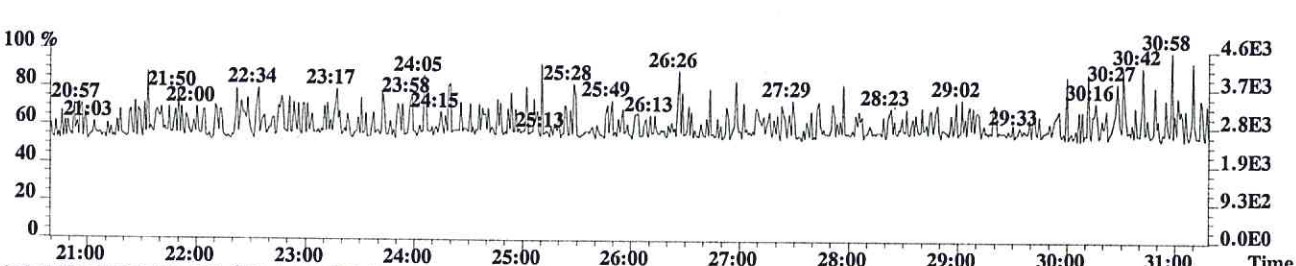
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



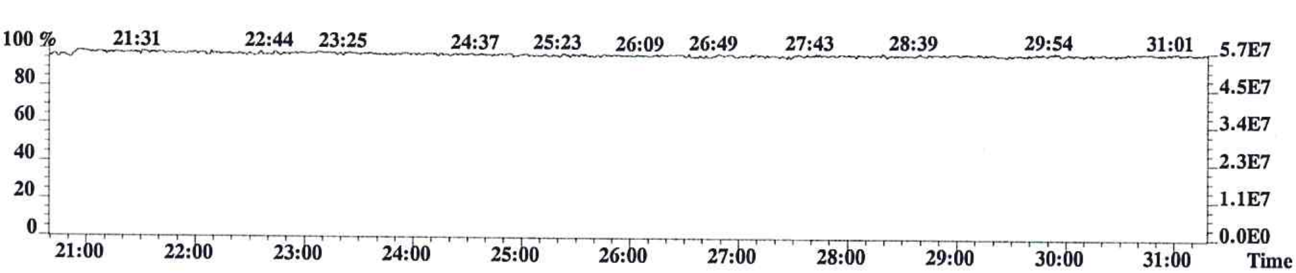
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



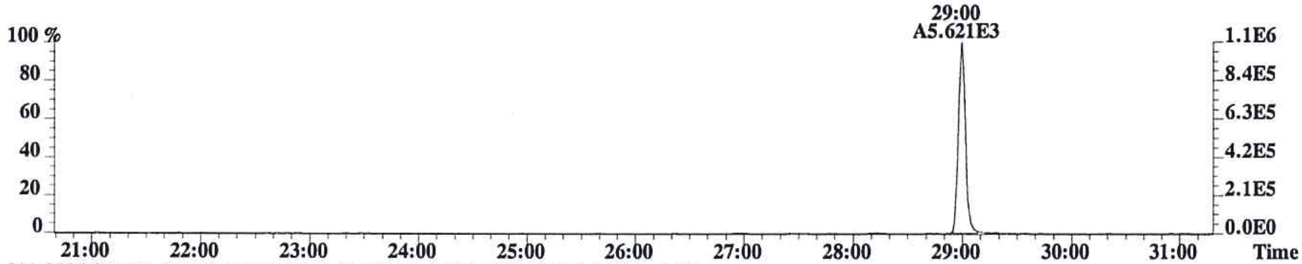
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



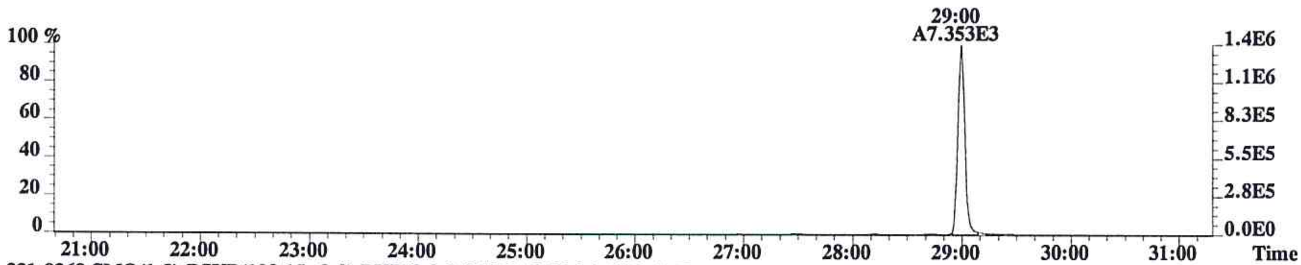
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



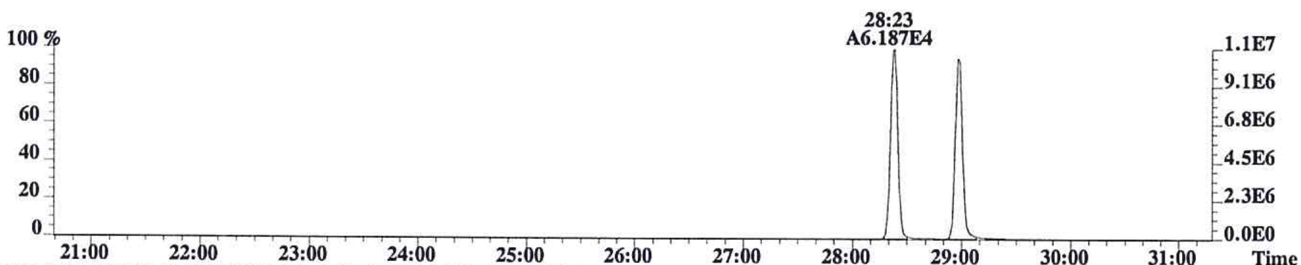
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



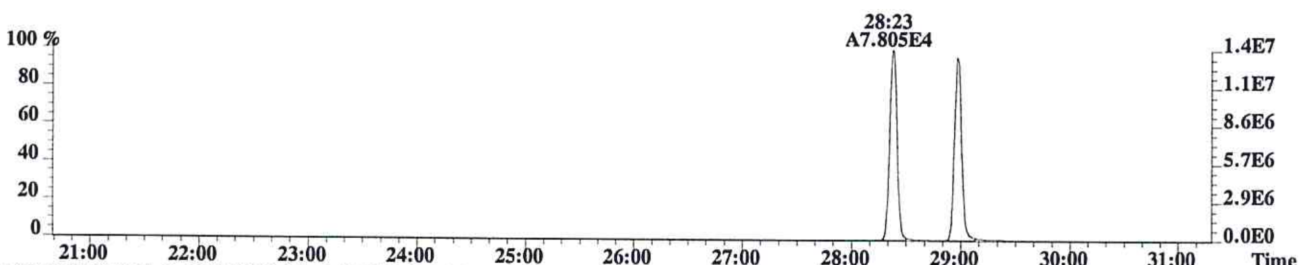
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



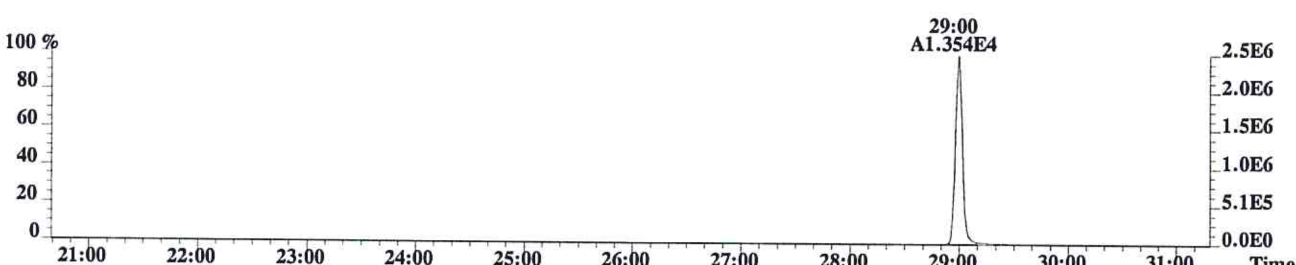
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8368.0,1.00%,F,T)



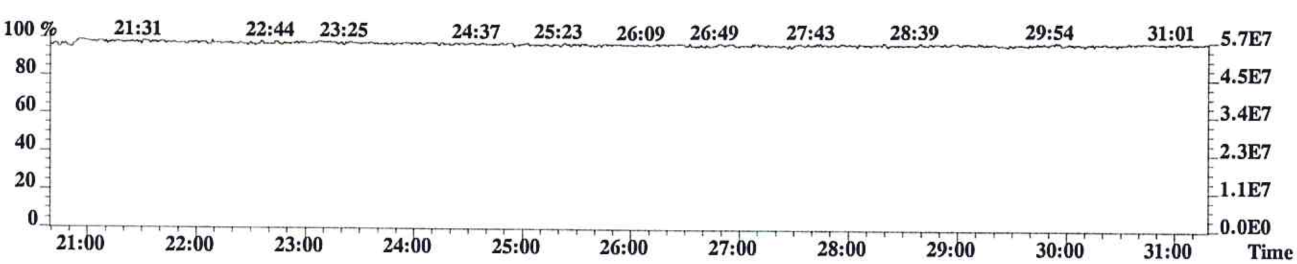
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



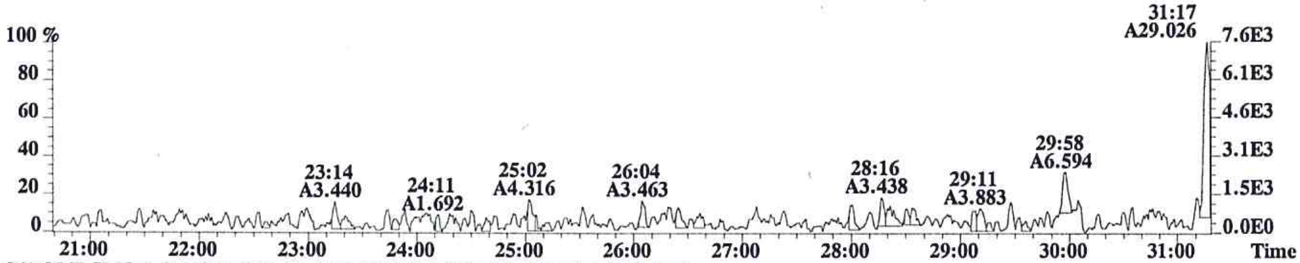
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



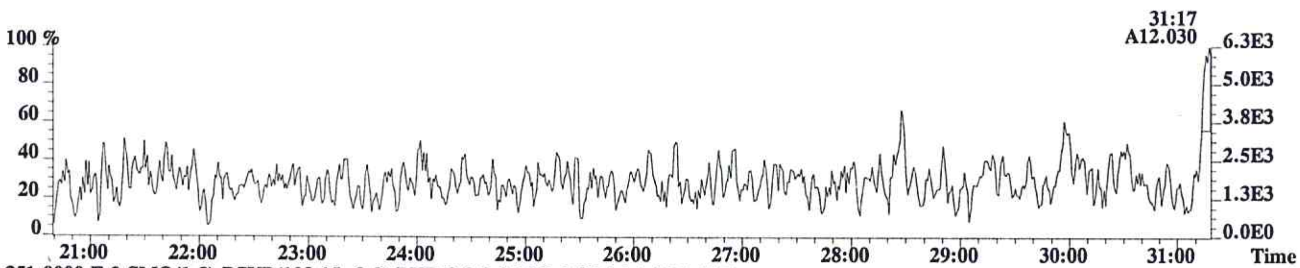
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



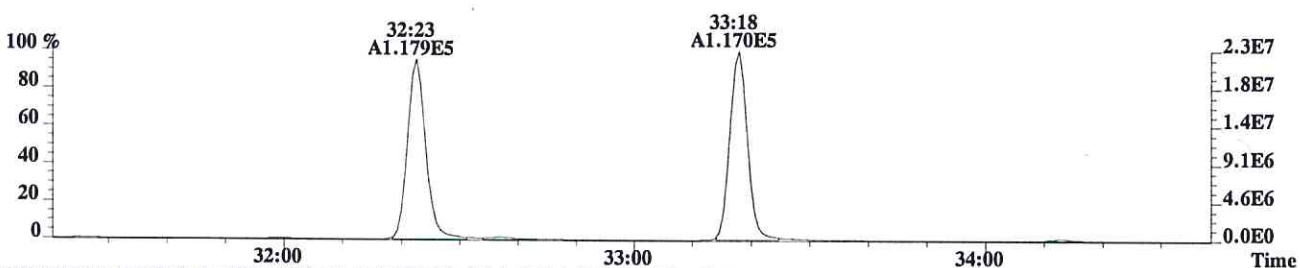
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



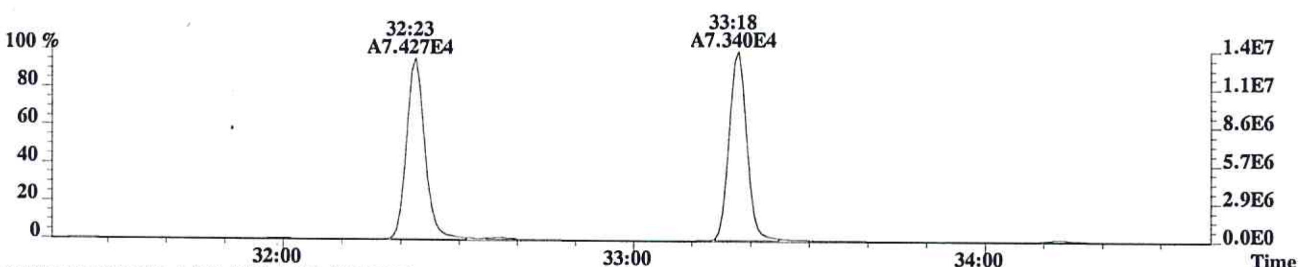
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



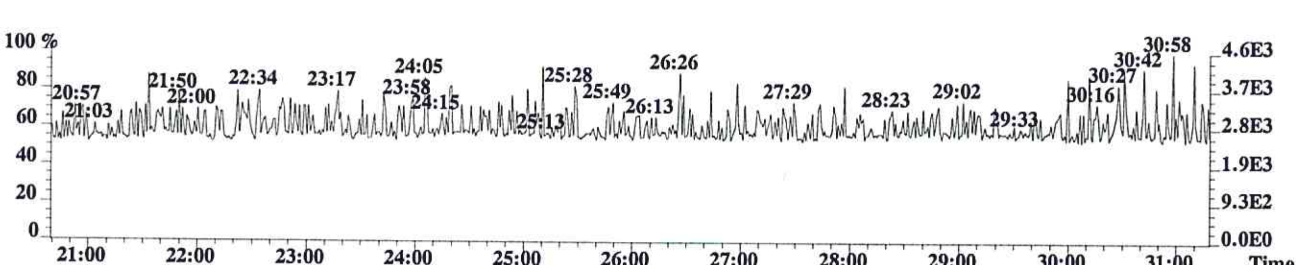
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



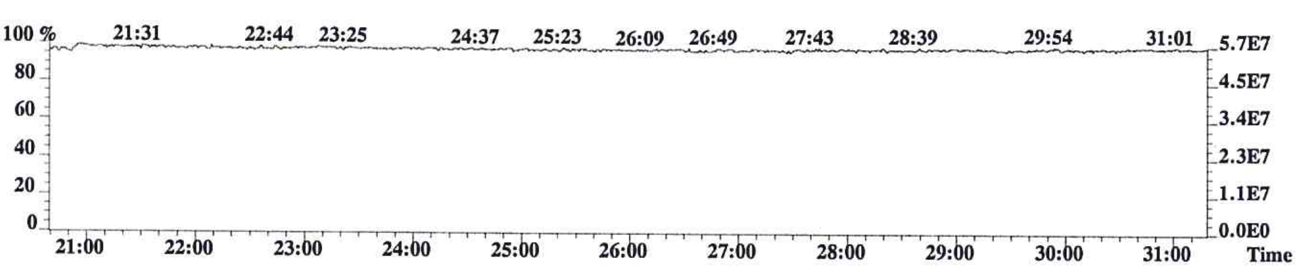
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



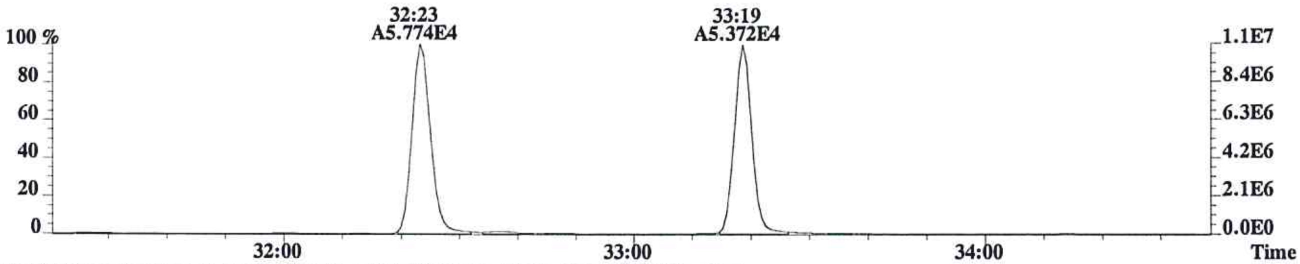
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



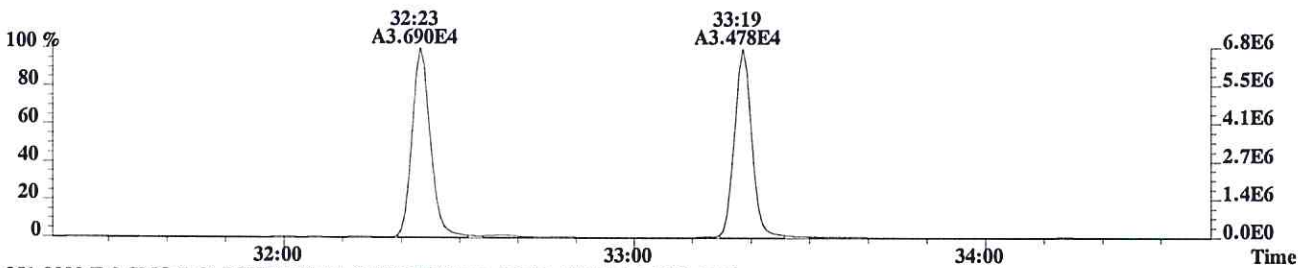
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



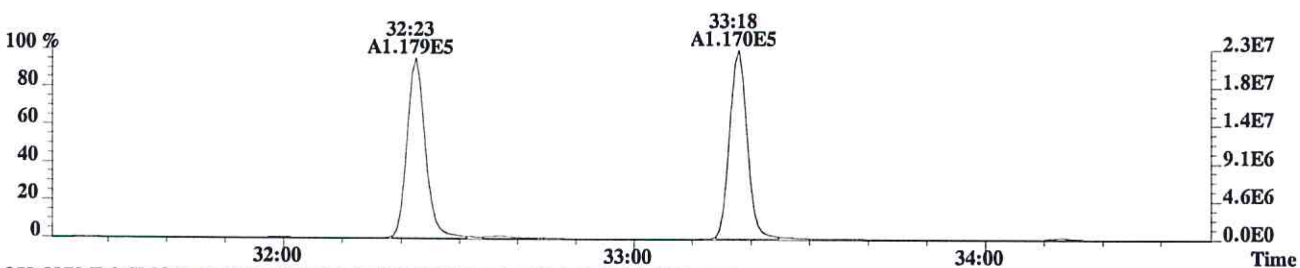
File:P603991 #1-298 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6464.0,1.00%,F,T)



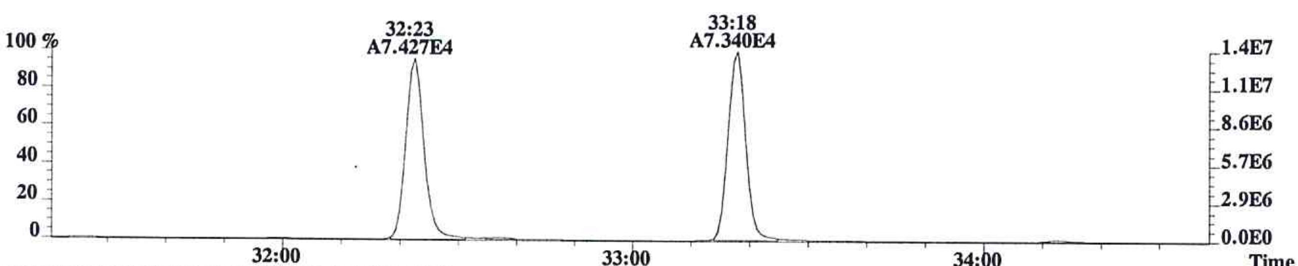
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10468.0,1.00%,F,T)



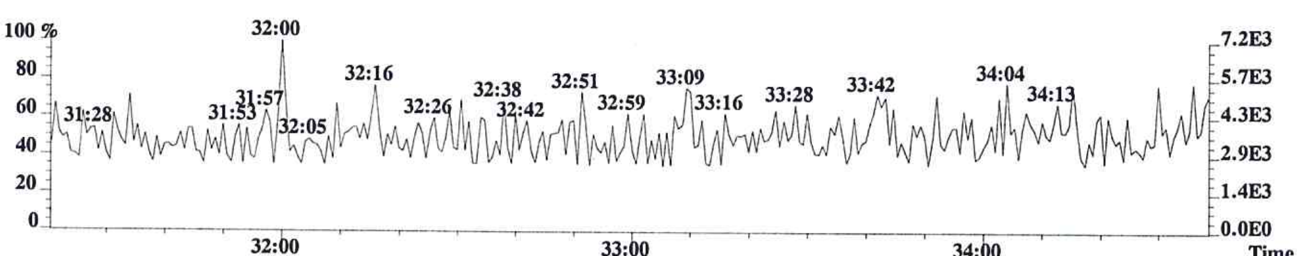
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



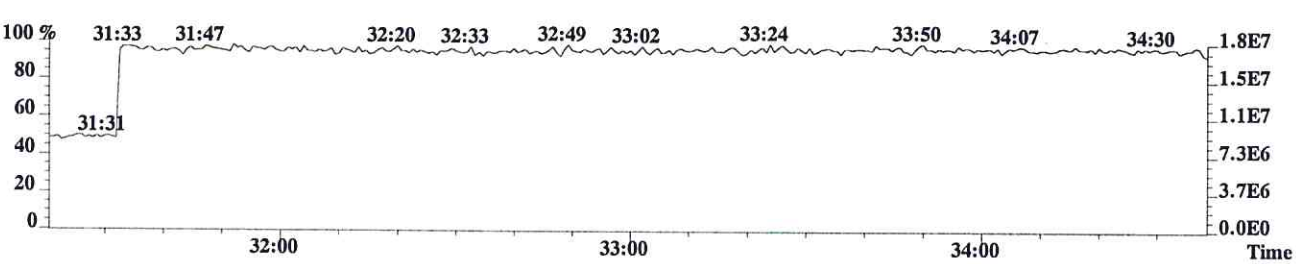
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



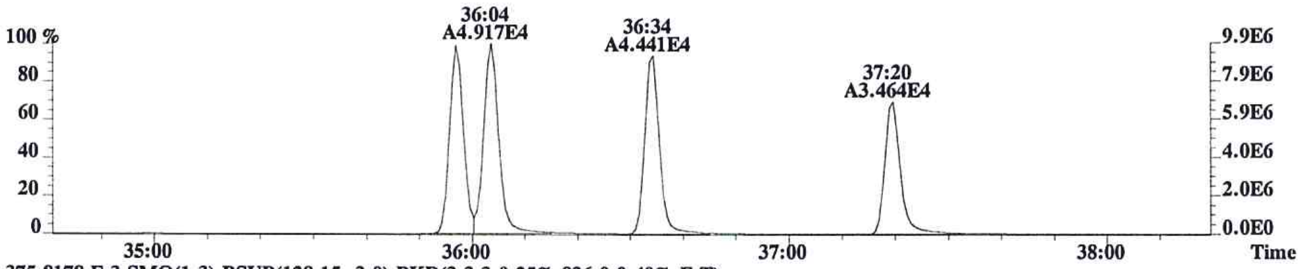
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



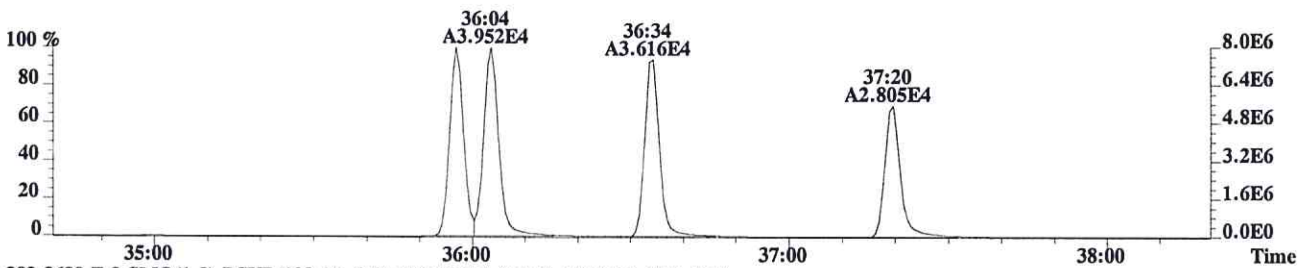
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



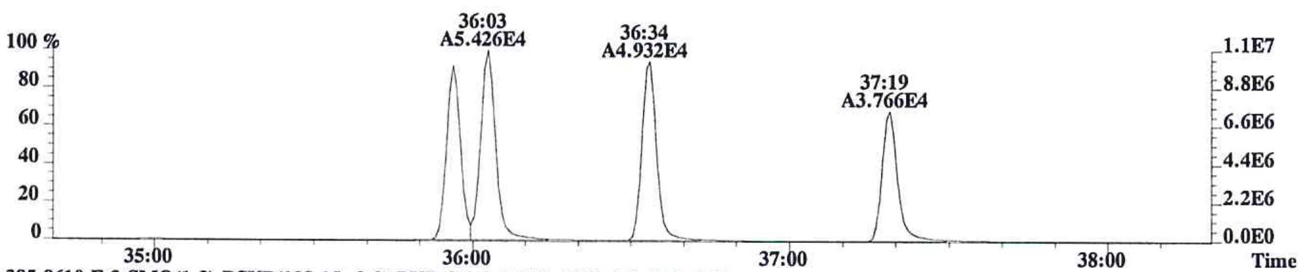
File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



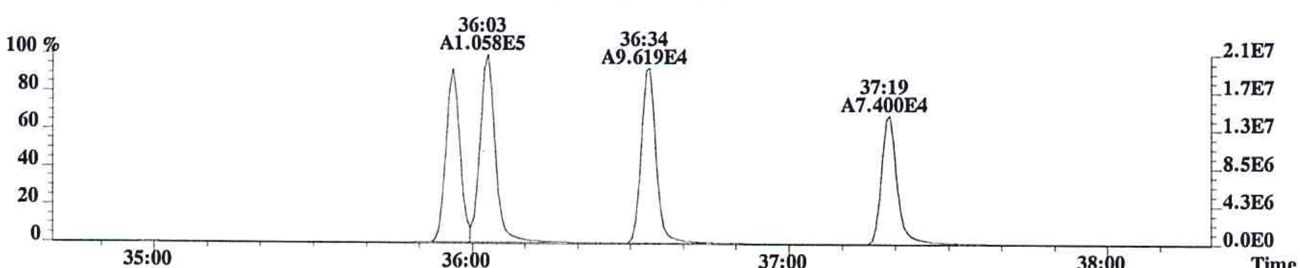
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



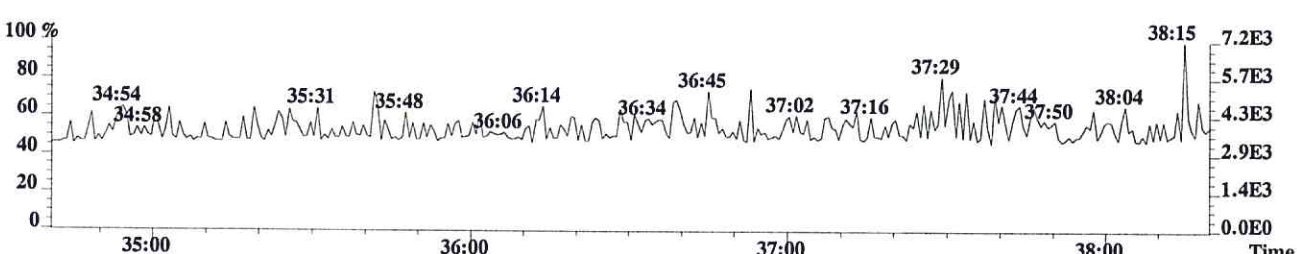
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)



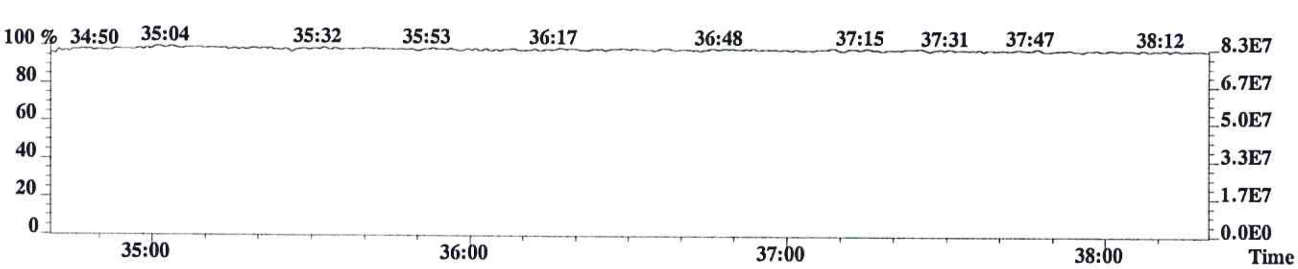
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.40%,F,T)



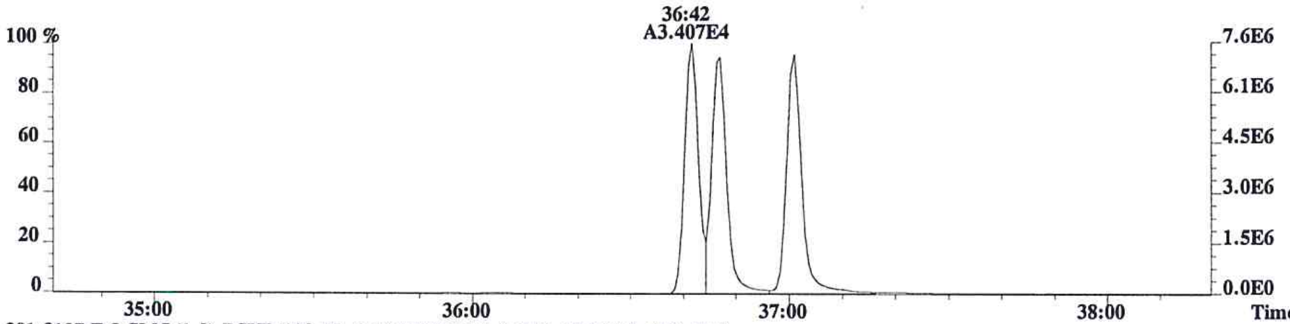
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



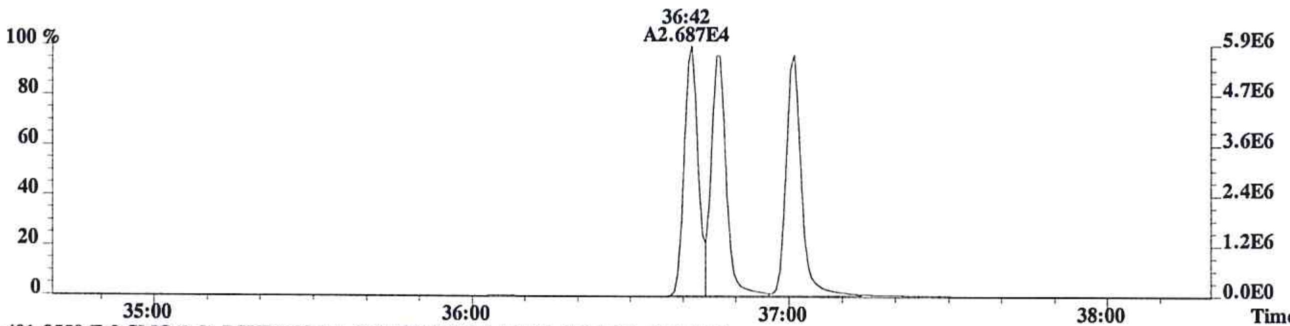
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



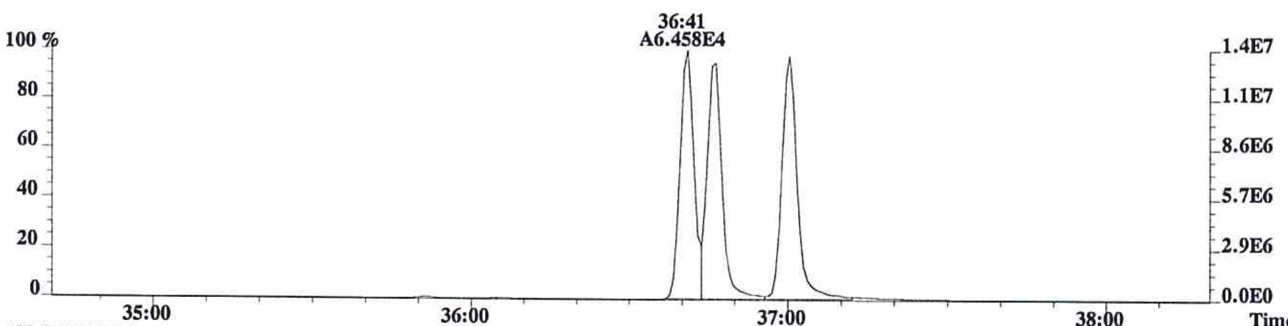
File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



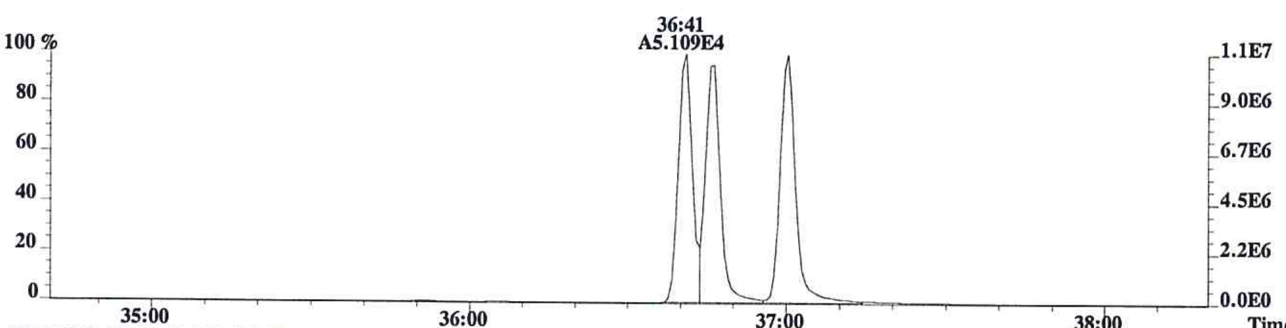
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



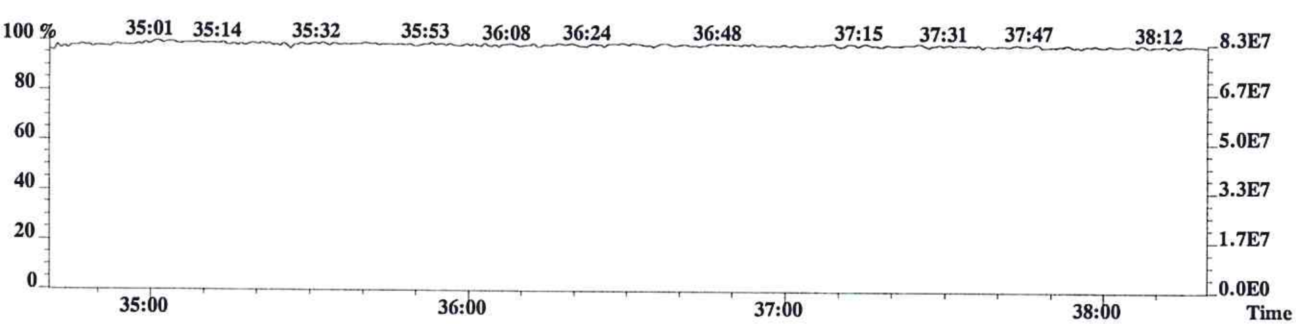
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P604006

Circle one: Beginning / Ending

Date: 06/24/16

Method: SPME 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P604005	26-JUN-16	08:48:01
173638	CS3	P604006	26-JUN-16	09:39:51
METHOD BLANK	EQ1600220-01	P604007	26-JUN-16	11:18:23
METHOD BLANK	EQ1600222-01	P604008	26-JUN-16	12:04:48
METHOD BLANK	EQ1600222-04	P604009	26-JUN-16	12:53:50
LCS	EQ1600220-02	P604016	26-JUN-16	18:59:32
DLCS	EQ1600220-03	P604017	26-JUN-16	19:48:33
04072016SJGW14	E1600326-008	P604010	26-JUN-16	14:07:59
04072016SJGW15	E1600326-009	P604011	26-JUN-16	14:54:24

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160626.SPL Page 1 of 2
Last Modified: Friday, July 01, 2016 08:56:23 Eastern Daylight Time
Printed: Friday, July 01, 2016 08:56:32 Eastern Daylight Time Page Position (1, 1)

opus 4: P604006res

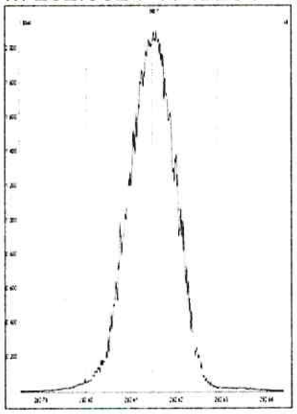
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/26/16	08:48	P604005	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKC	HRMS check 08:42
2		09:39	P604006	173638	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:18	P604007	EQ1600220-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		12:04	P604008	EQ1600222-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		12:53	P604009	EQ1600222-04	MB	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		14:07	P604010	E1600326-008	E1600326-008	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		14:54	P604011	E1600326-009	E1600326-009	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:43	P604012	E1600426-001	E1600426-001	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		16:32	P604013	E1600426-002	E1600426-002	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		17:21	P604014	E1600426-003	E1600426-003	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		18:10	P604015	E1600426-004	E1600426-004	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		18:59	P604016	EQ1600220-02	LCS	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		19:48	P604017	EQ1600220-03	DLCS	Tray1:13	EPA1613_ALS	Dioxin_ALS		HRMS check 10:25
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

JC 07/07/16

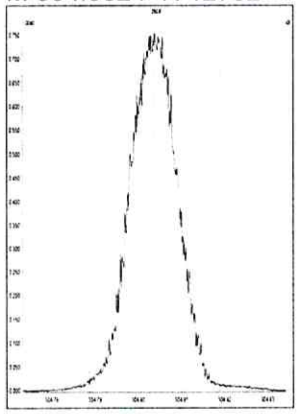
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:42:02 Eastern Daylight Time

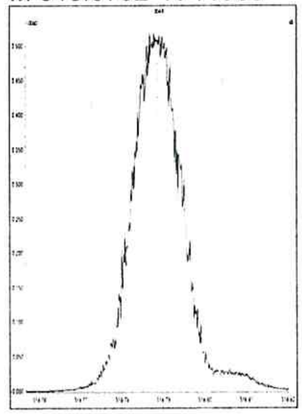
M 292.9824 R 12254



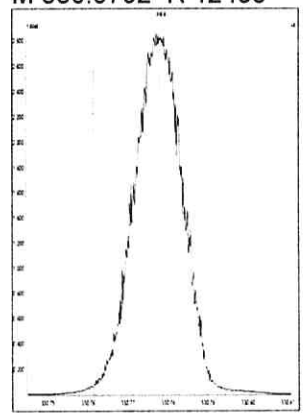
M 304.9824 R 12752



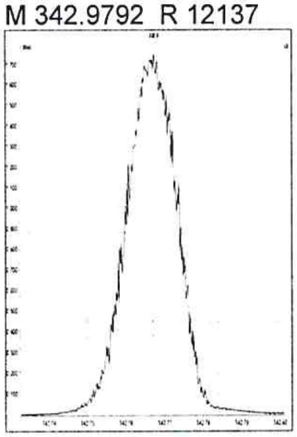
M 318.9792 R 11905



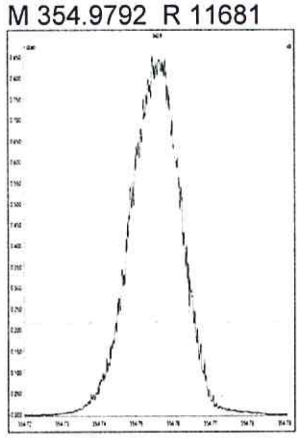
M 330.9792 R 12436



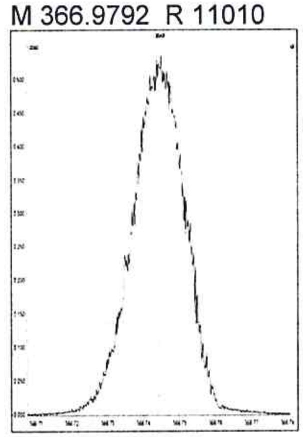
M 342.9792 R 12137



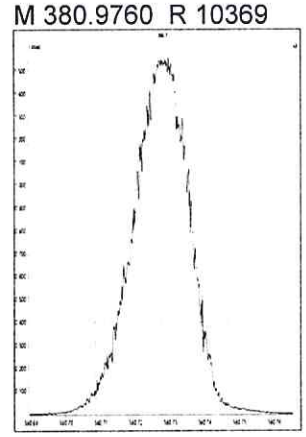
M 354.9792 R 11681



M 366.9792 R 11010

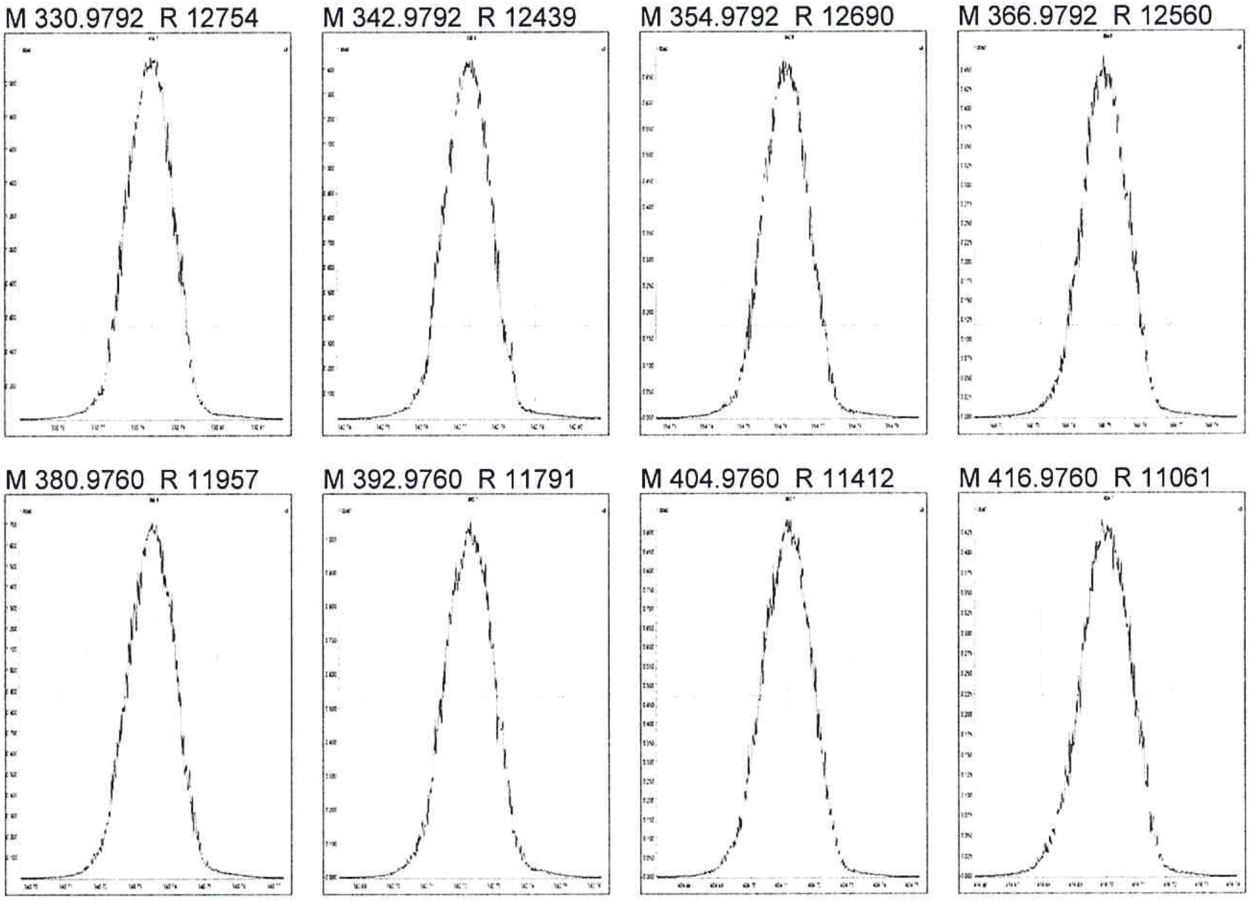


M 380.9760 R 10369



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:43:19 Eastern Daylight Time

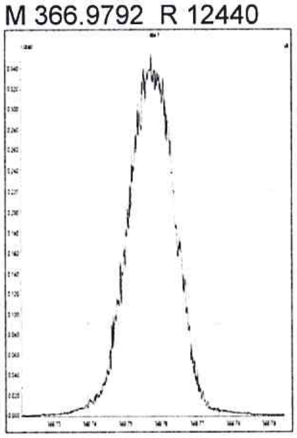


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

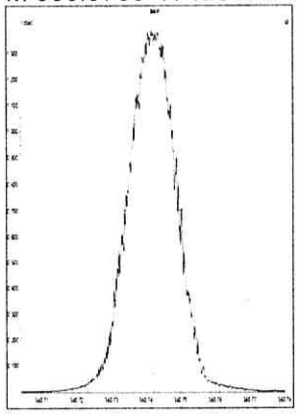
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:44:28 Eastern Daylight Time

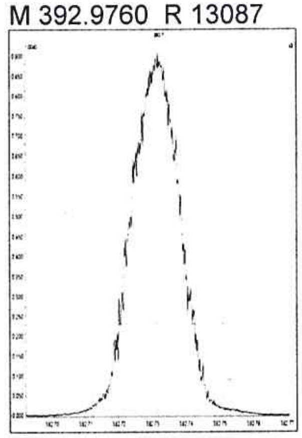
M 366.9792 R 12440



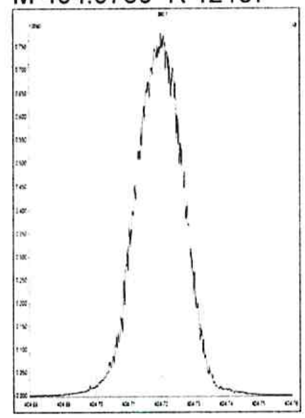
M 380.9760 R 12627



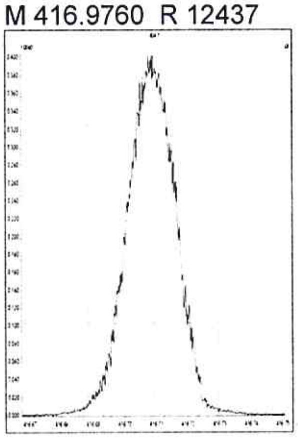
M 392.9760 R 13087



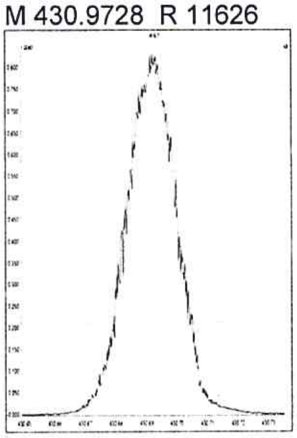
M 404.9760 R 12137



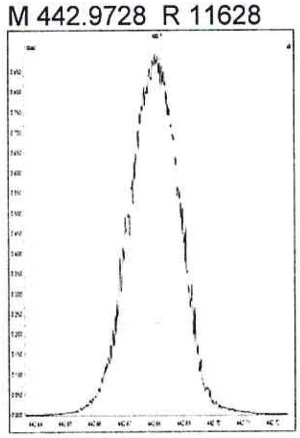
M 416.9760 R 12437



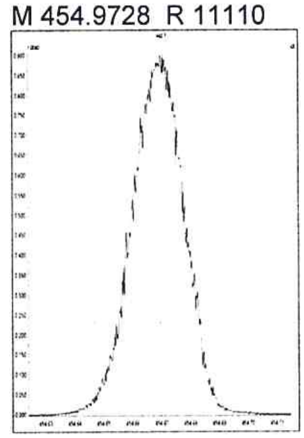
M 430.9728 R 11626



M 442.9728 R 11628



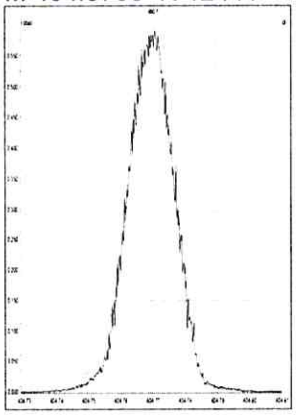
M 454.9728 R 11110



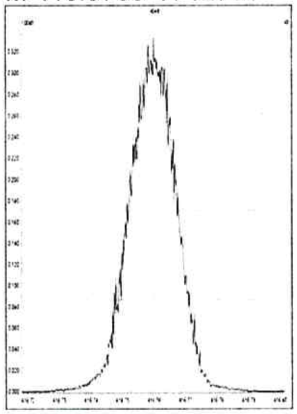
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:45:53 Eastern Daylight Time

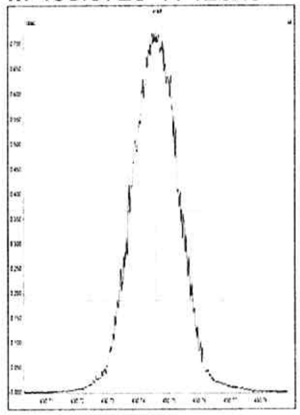
M 404.9760 R 12441



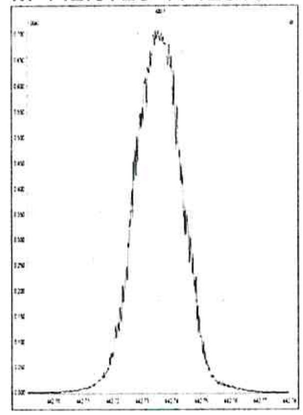
M 416.9760 R 12751



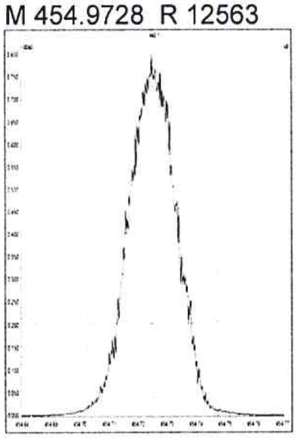
M 430.9728 R 12820



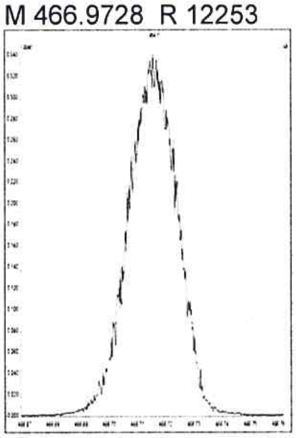
M 442.9728 R 12313



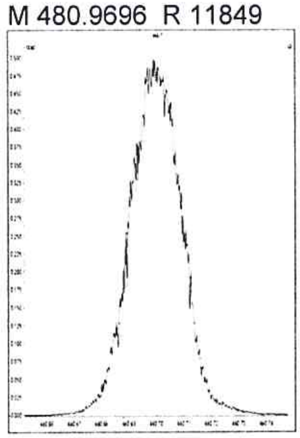
M 454.9728 R 12563



M 466.9728 R 12253



M 480.9696 R 11849

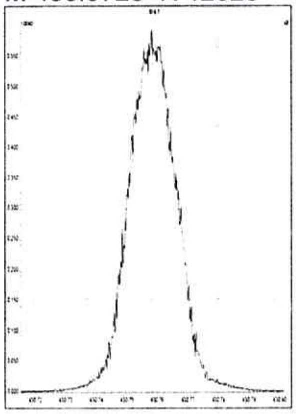


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

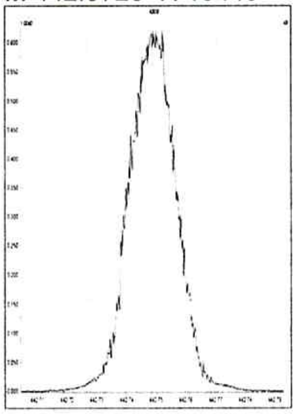
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:47:08 Eastern Daylight Time

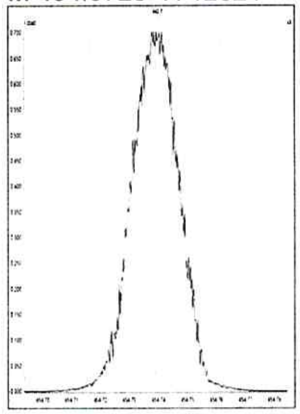
M 430.9728 R 12626



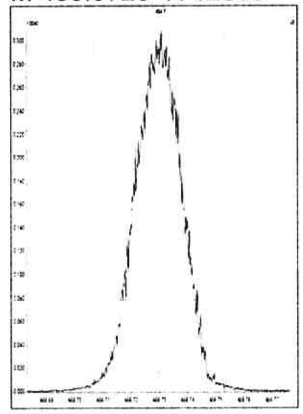
M 442.9728 R 13443



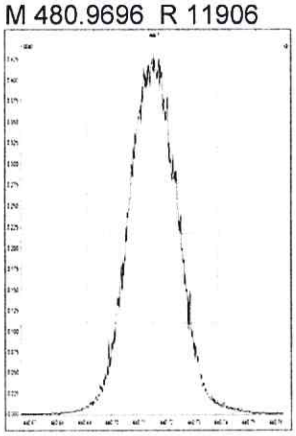
M 454.9728 R 12821



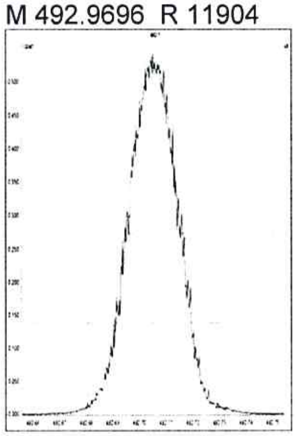
M 466.9728 R 12889



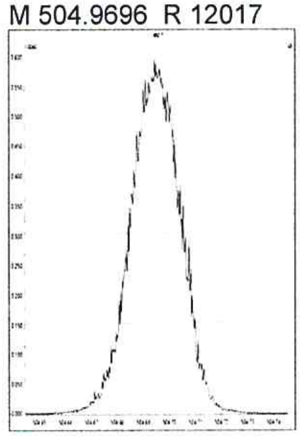
M 480.9696 R 11906



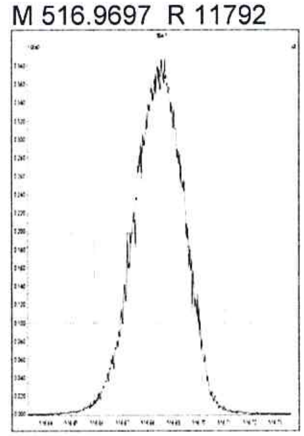
M 492.9696 R 11904



M 504.9696 R 12017



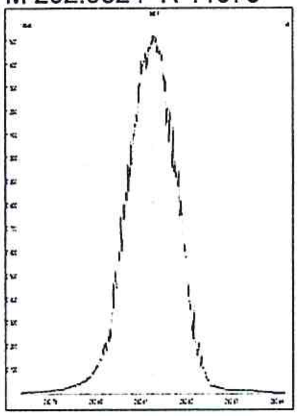
M 516.9697 R 11792



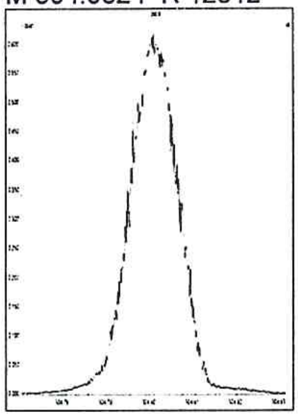
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:25:05 Eastern Daylight Time

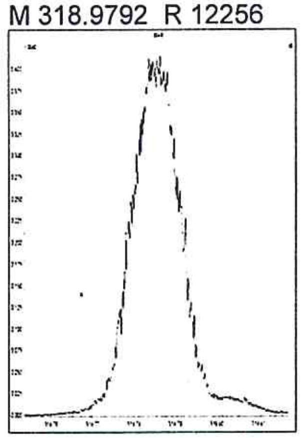
M 292.9824 R 11573



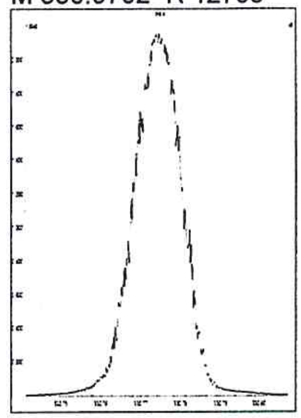
M 304.9824 R 12312



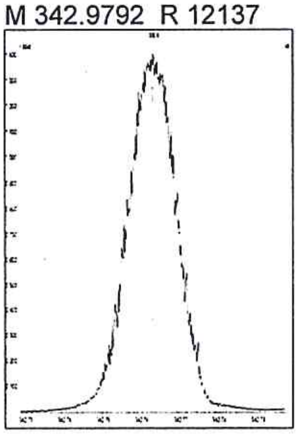
M 318.9792 R 12256



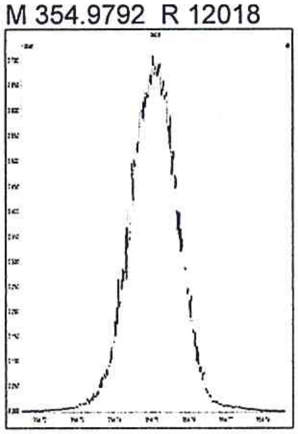
M 330.9792 R 12753



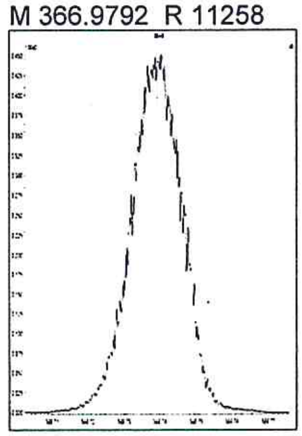
M 342.9792 R 12137



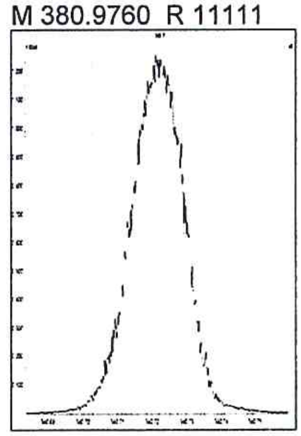
M 354.9792 R 12018



M 366.9792 R 11258



M 380.9760 R 11111

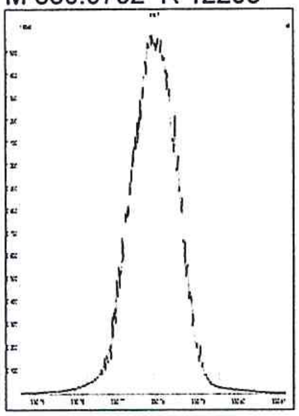


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

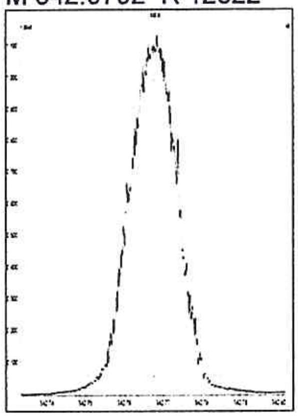
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:27:01 Eastern Daylight Time

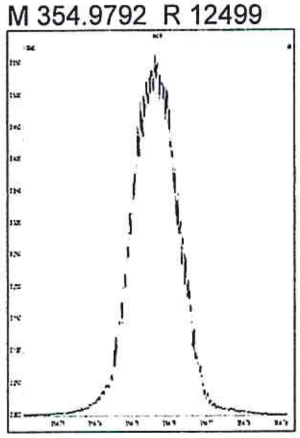
M 330.9792 R 12253



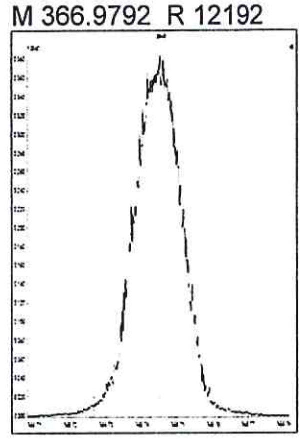
M 342.9792 R 12822



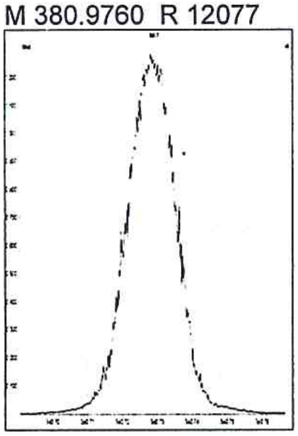
M 354.9792 R 12499



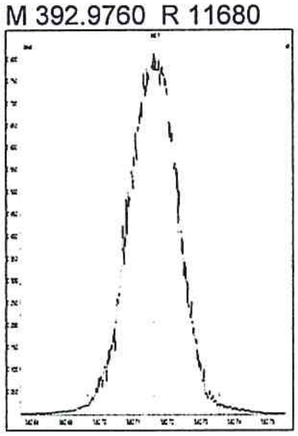
M 366.9792 R 12192



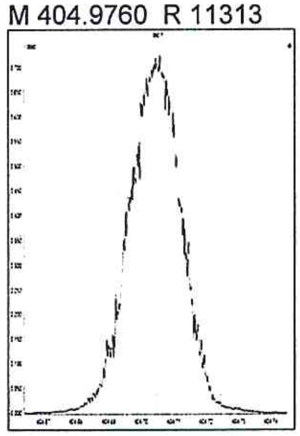
M 380.9760 R 12077



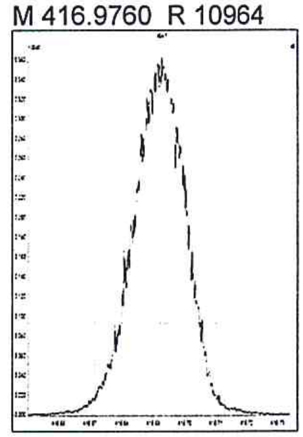
M 392.9760 R 11680



M 404.9760 R 11313



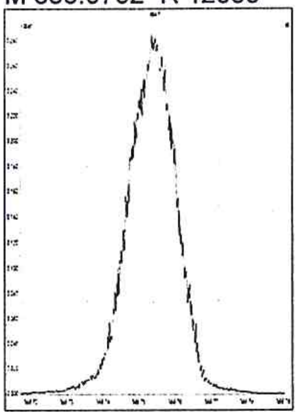
M 416.9760 R 10964



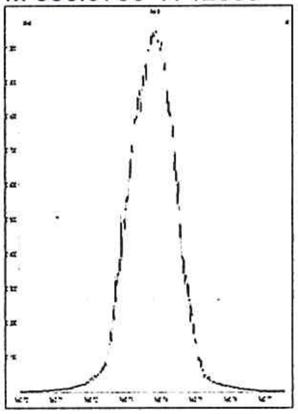
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:28:22 Eastern Daylight Time

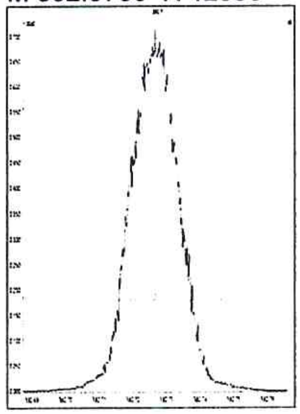
M 366.9792 R 12565



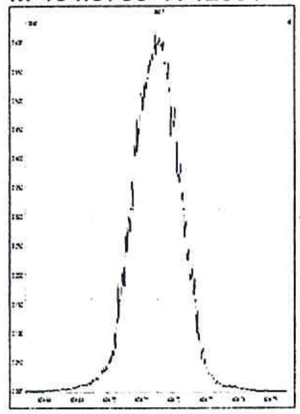
M 380.9760 R 12686



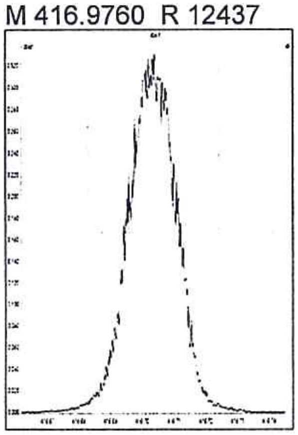
M 392.9760 R 12630



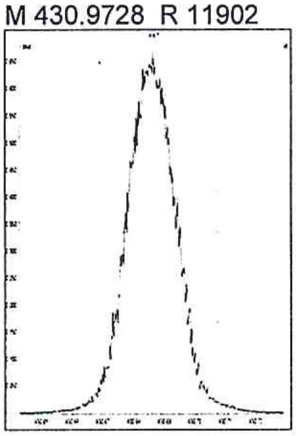
M 404.9760 R 12501



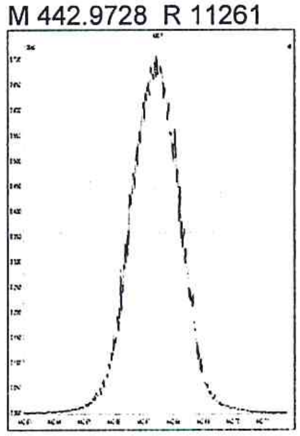
M 416.9760 R 12437



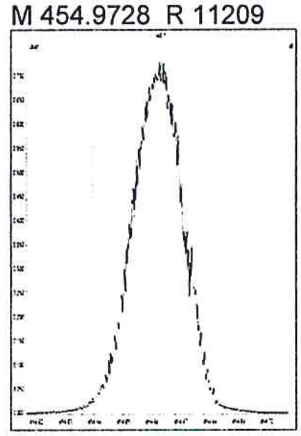
M 430.9728 R 11902



M 442.9728 R 11261



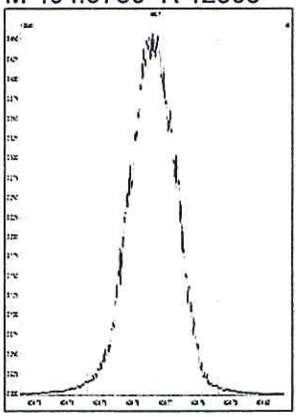
M 454.9728 R 11209



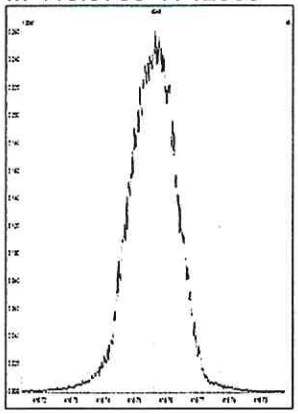
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:29:47 Eastern Daylight Time

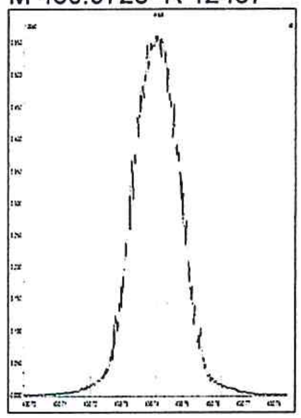
M 404.9760 R 12503



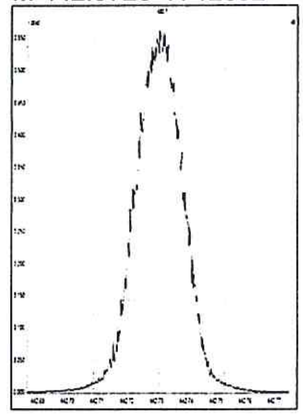
M 416.9760 R 12563



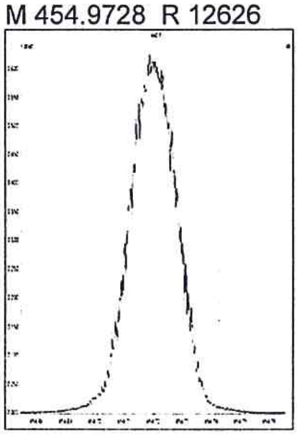
M 430.9728 R 12437



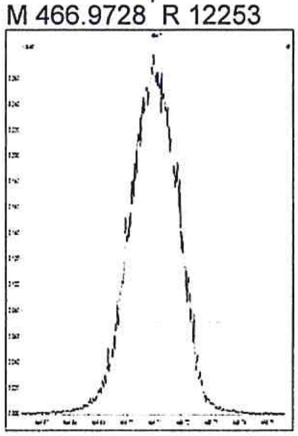
M 442.9728 R 12692



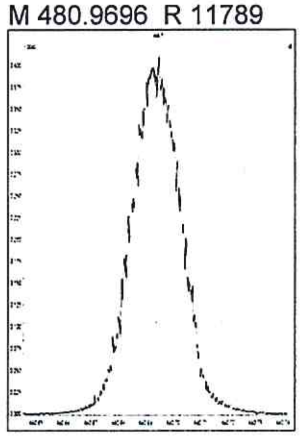
M 454.9728 R 12626



M 466.9728 R 12253



M 480.9696 R 11789

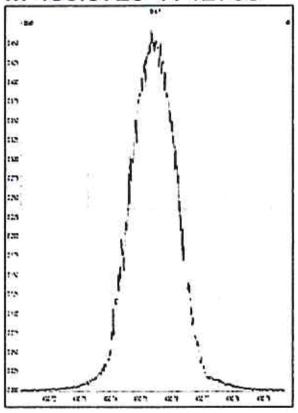


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

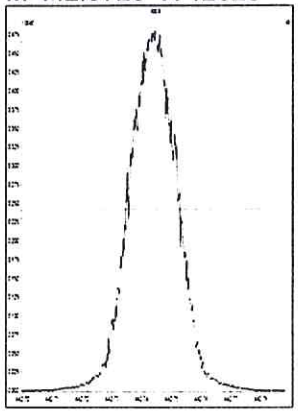
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:31:11 Eastern Daylight Time

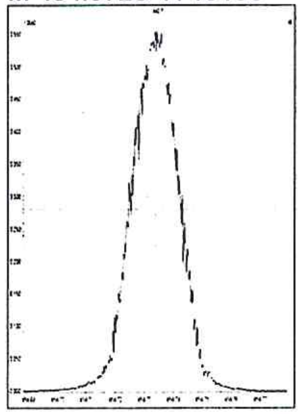
M 430.9728 R 12755



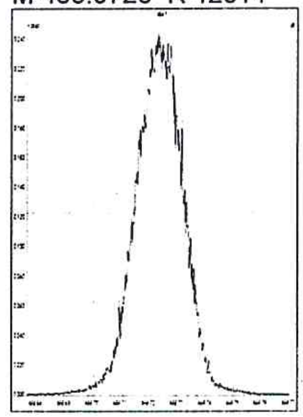
M 442.9728 R 12628



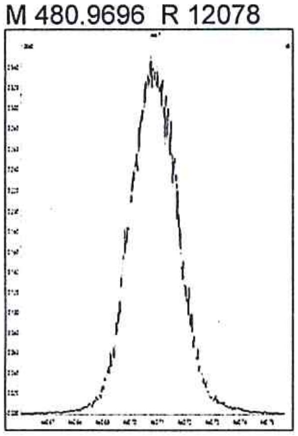
M 454.9728 R 13158



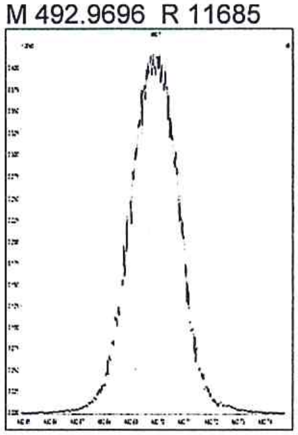
M 466.9728 R 12314



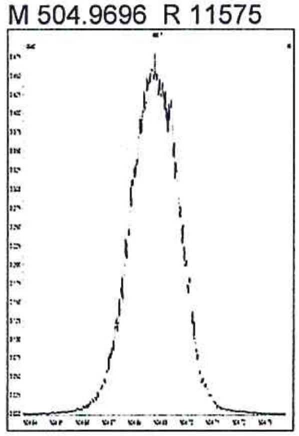
M 480.9696 R 12078



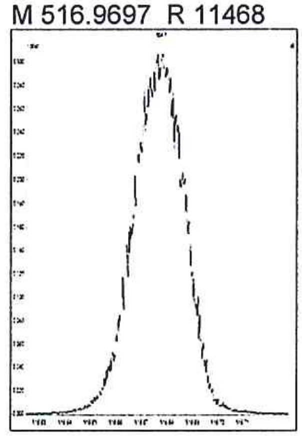
M 492.9696 R 11685



M 504.9696 R 11575



M 516.9697 R 11468



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

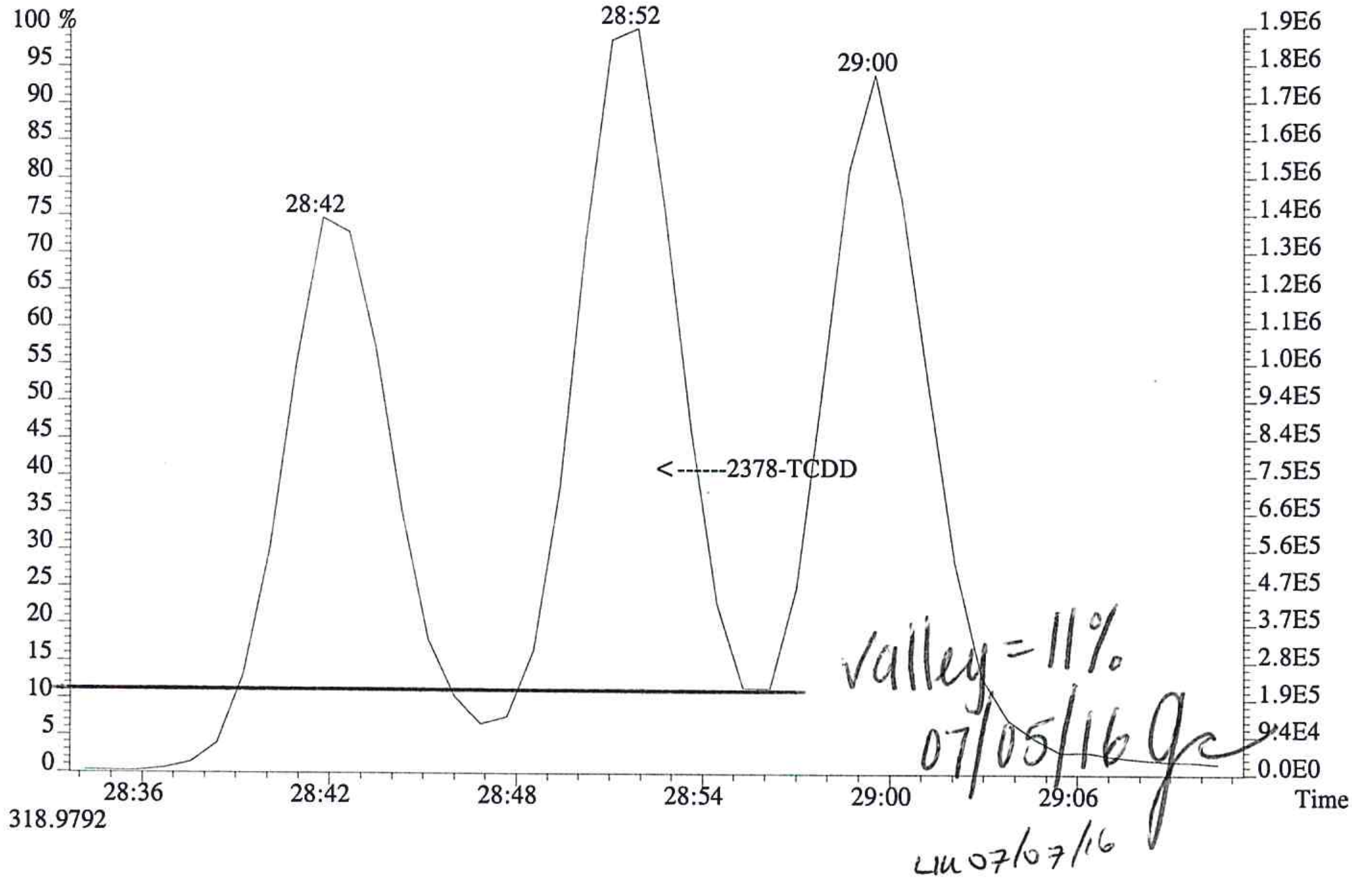
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX   Case No.: ______   SDG No.:
GC Column: DB-5MSUI   ID: 0.25 (mm)   Lab File ID: P604005
Date Analyzed: 26-JUN-2016
Time Analyzed: 08:48:01

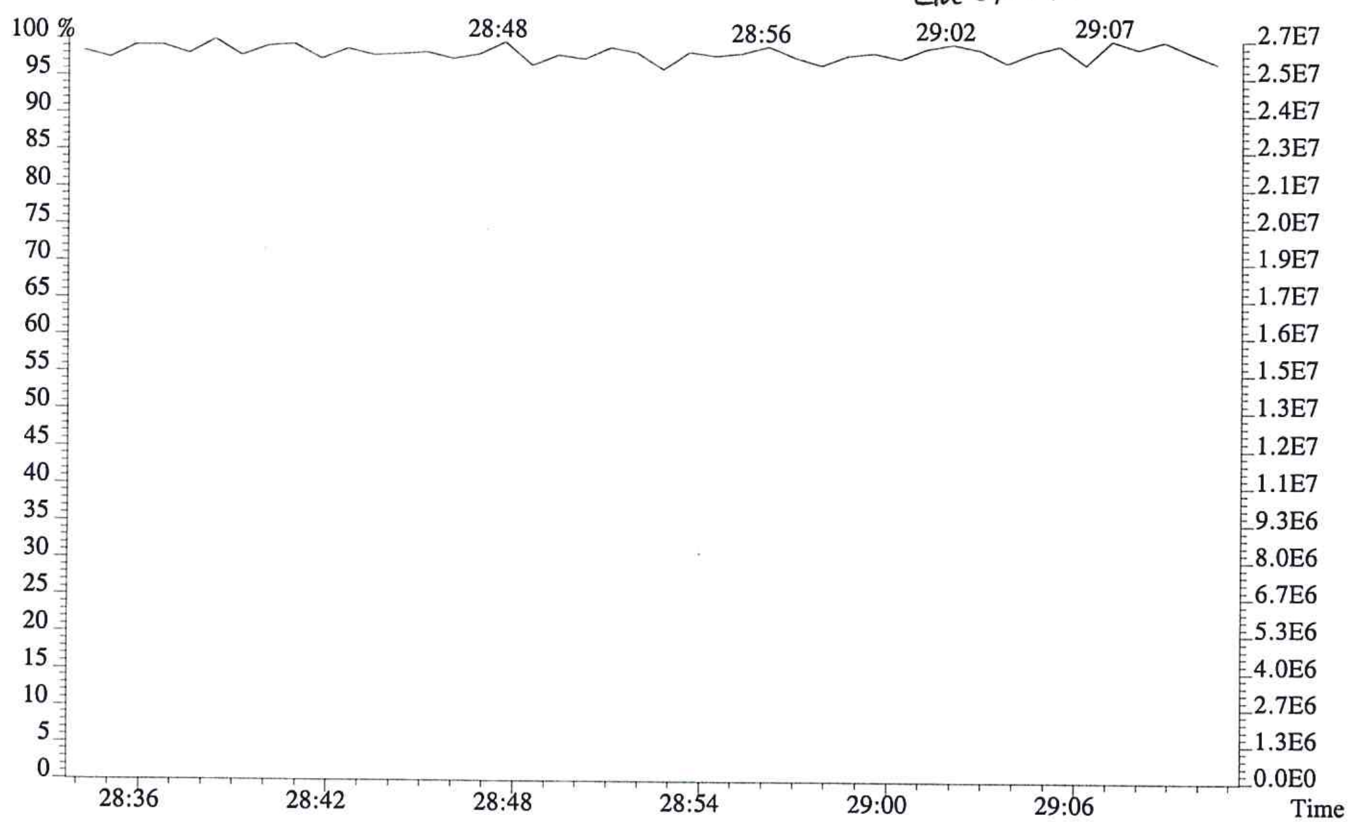
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:41	30:03
TCDD	25:32	29:52
PeCDF	29:56	34:13
PeCDD	31:29	33:57
HxCDF	34:50	37:20
HxCDD	35:20	36:56

% Valley 2378-TCDD: 11 %

File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

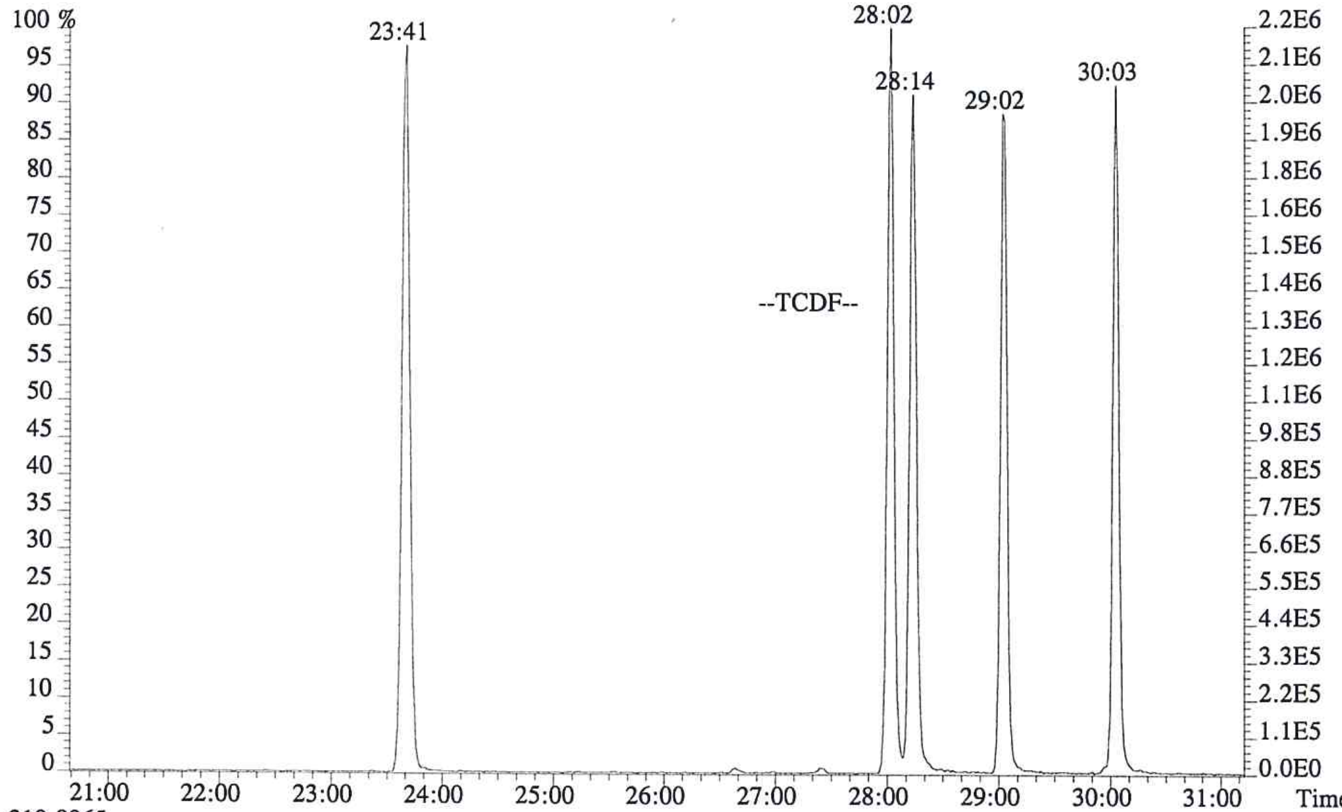


318.9792

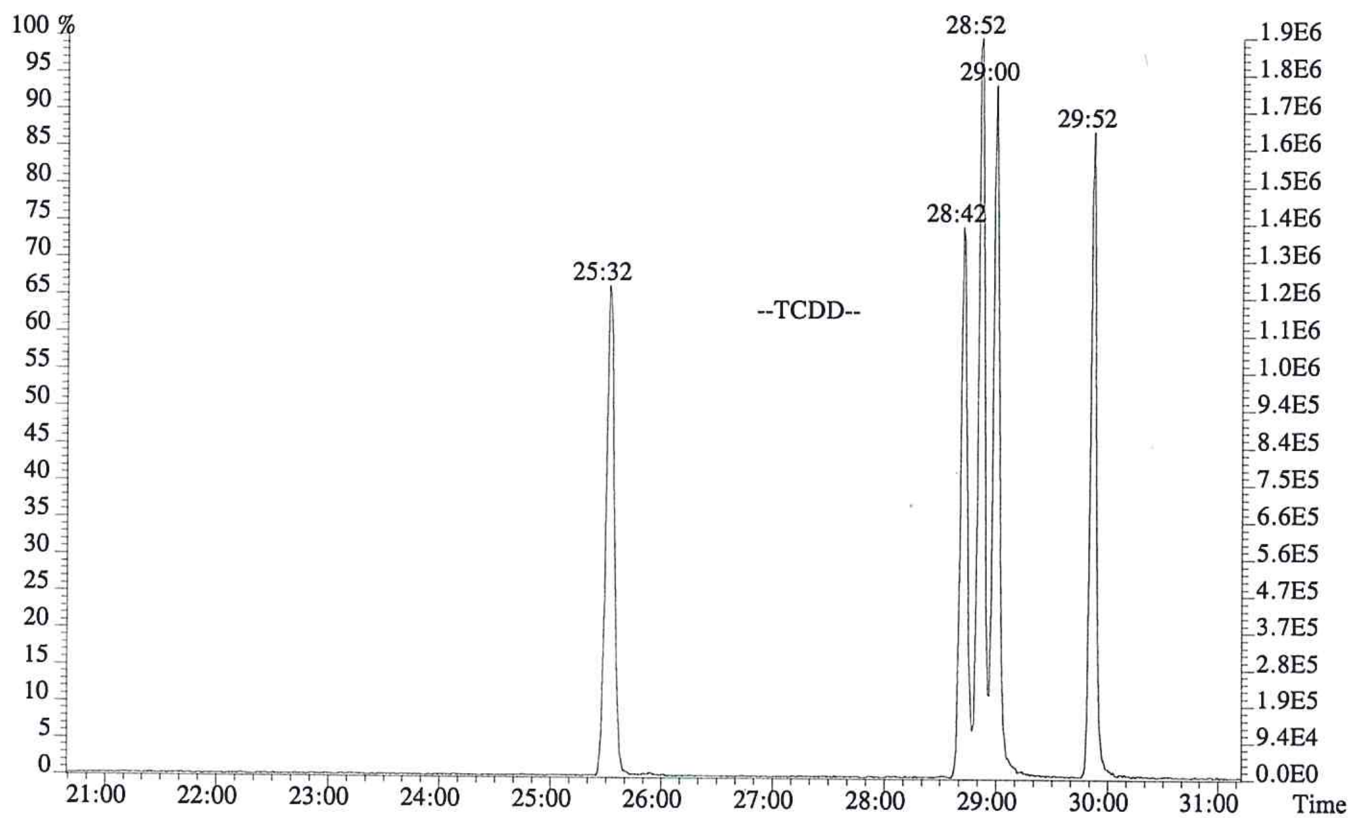


File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

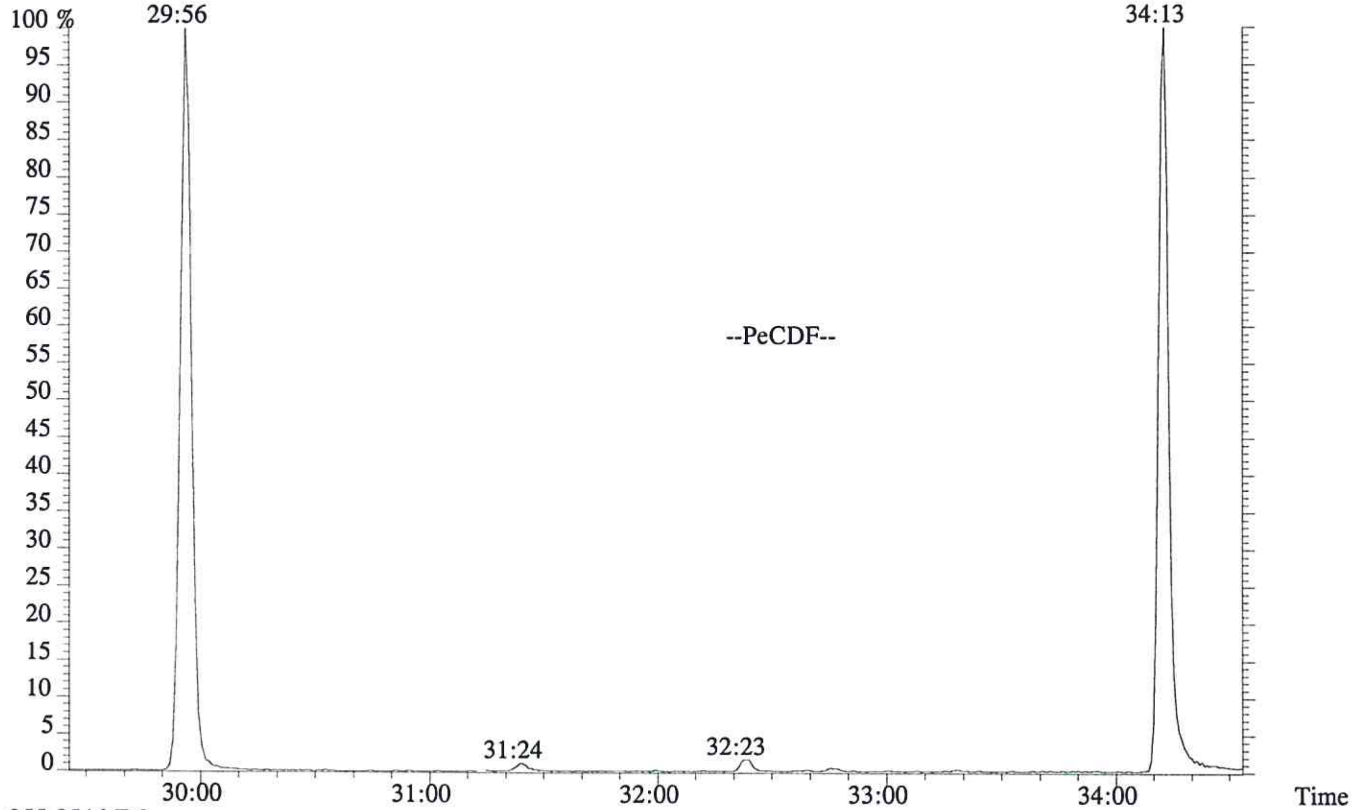
303.9016



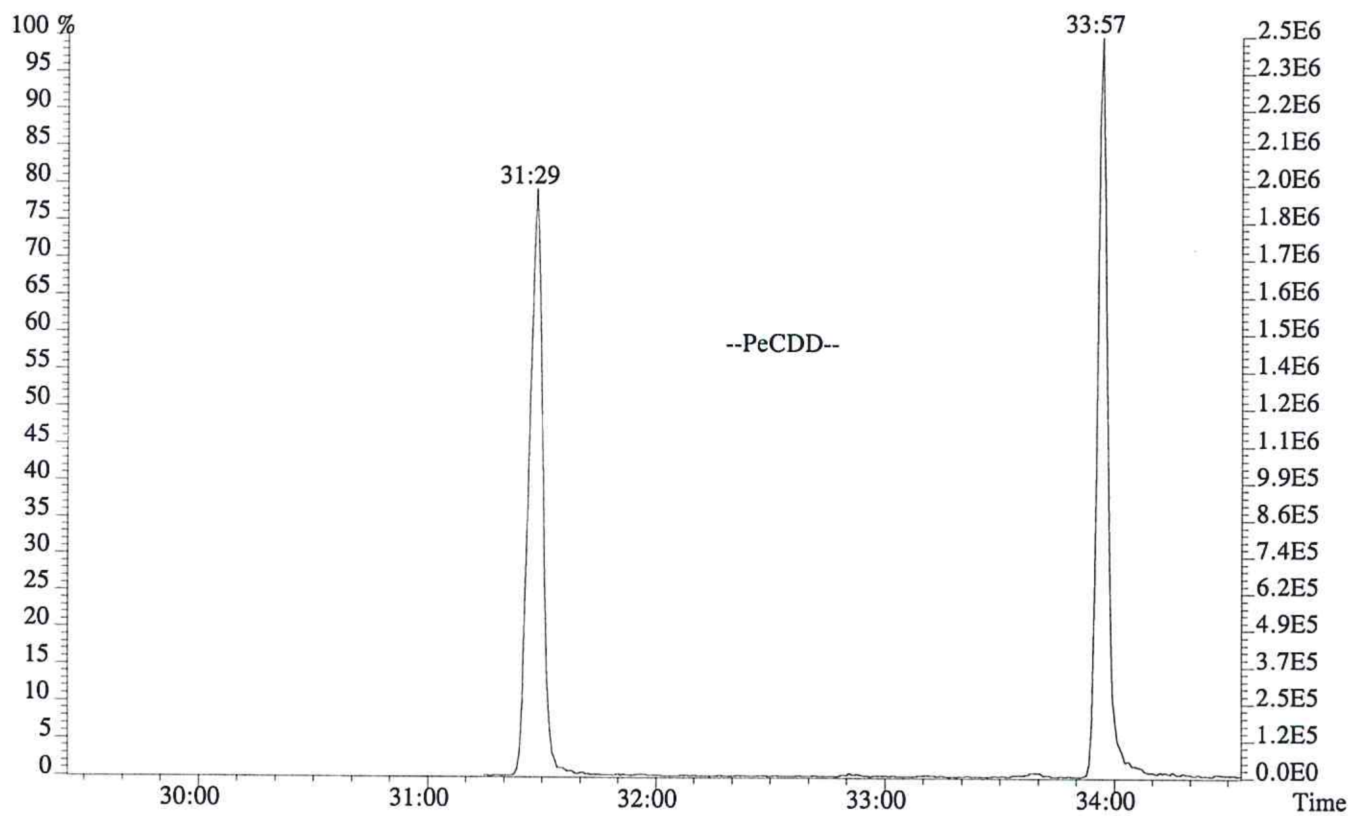
319.8965



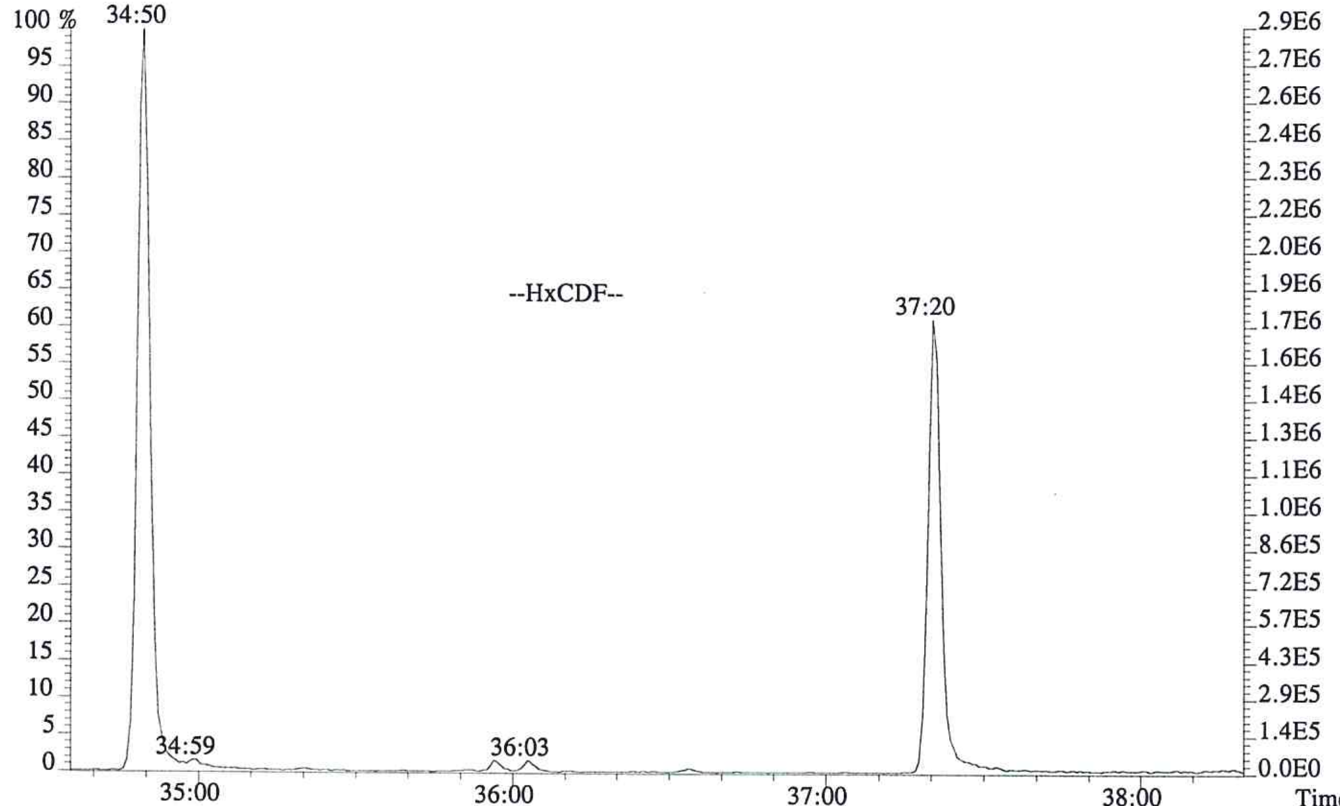
File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



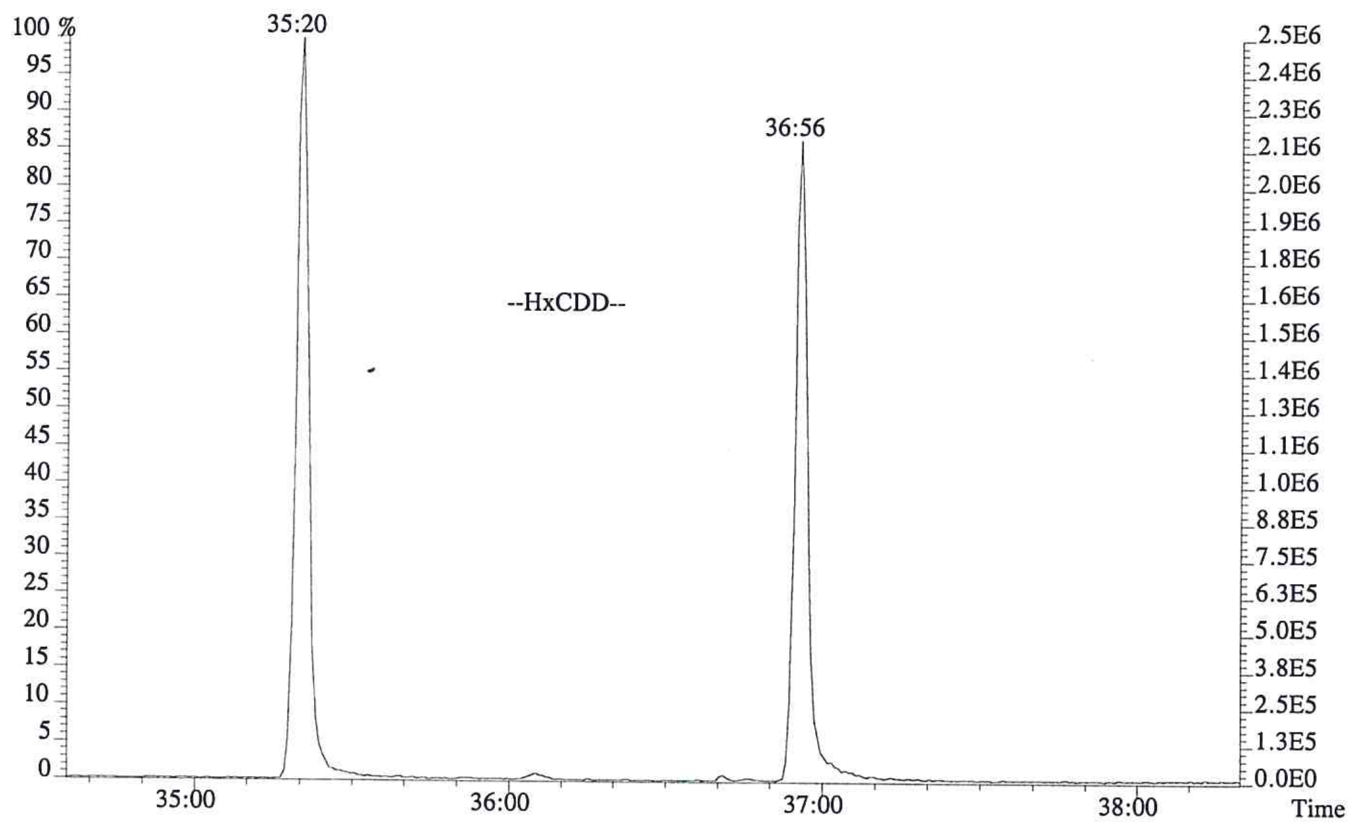
355.8546 F:2



File:P604005 #1-337 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08   GC Column ID: DB-5MSUI

VER Data Filename: P604006   Analysis Date: 26-JUN-16 Time: 09:39:51

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	4.6	3.9 - 6.45	-8.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	4.6	4.2 - 6.0	-8.7
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	25.3	20.5 - 30.5	1.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P604006 Analysis Date: 26-JUN-16 Time: 09:39:51

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	51	41 - 60.5	2.2
13C-1,2,3,4-TCDF	M/M+2	0.79	0.65-0.89	48	35.5-70	-3.2
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	49	35.5-70	-2.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	47	38 - 65	-5.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	45	38.5 - 65	-10.1
13C-1,2,3,7,8,9-HxCDF		0.51	0.43-0.59	51	37 - 67.5	1.3
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	-0.5

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #6 Filename P604006 Samp: 1 Inj: 1 Acquired: 26-JUN-16 09:39:51
Processed: 7-JUL-16 08:02:36 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:13	6.006e+03	8.060e+03	0.75	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	4.535e+04	2.938e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:59	5.052e+03	6.689e+03	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	7.074e+04	9.022e+04	0.78	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	1.027e+05	6.509e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	9.728e+04	6.152e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.128e+04	6.181e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	7.295e+04	9.239e+04	0.79	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	5.358e+04	6.862e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	5.707e+04	7.174e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	5.907e+04	4.596e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	1.211e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

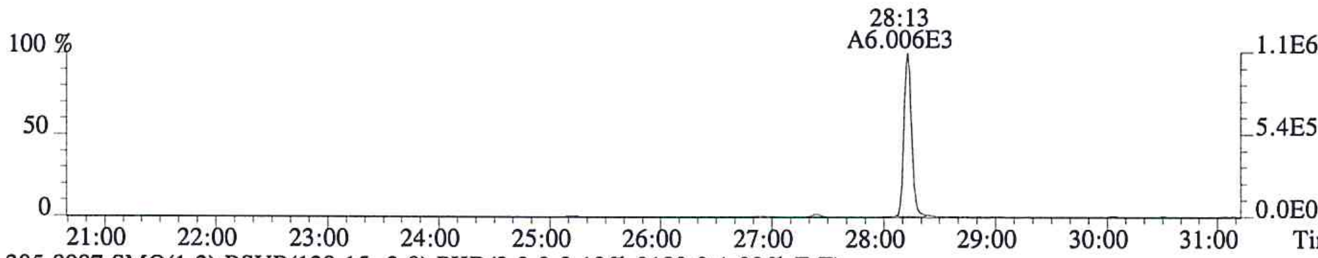
CLIENT ID.
173638

Run #6 Filename P604006 Samp: 1 Inj: 1 Acquired: 26-JUN-16 09:39:51
Processed: 7-JUL-16 08:02:36 LAB. ID: CS3

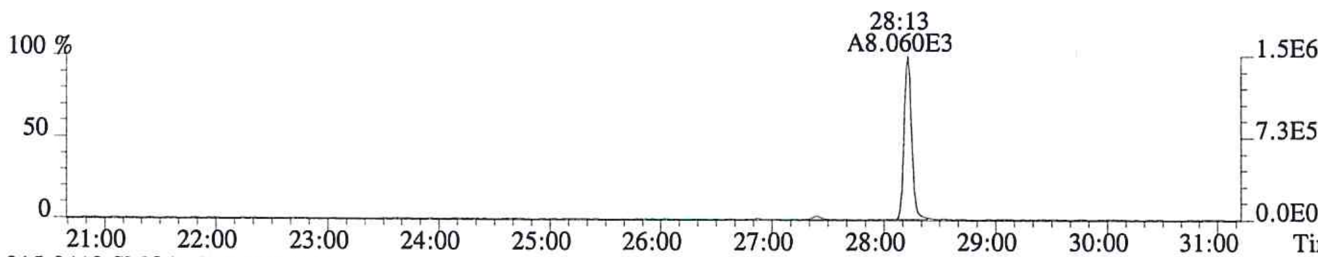
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.08e+06	1.18e+03	9.2e+02	1.46e+06	3.18e+03	4.6e+02
3	2,3,4,7,8-PeCDF	8.96e+06	1.40e+03	6.4e+03	5.78e+06	1.17e+04	4.9e+02
11	2,3,7,8-TCDD	9.68e+05	1.22e+03	7.9e+02	1.27e+06	1.48e+03	8.6e+02
18	13C-2,3,7,8-TCDF	1.25e+07	4.44e+03	2.8e+03	1.60e+07	2.40e+03	6.7e+03
19	13C-1,2,3,7,8-PeCDF	1.90e+07	1.81e+04	1.0e+03	1.19e+07	2.43e+03	4.9e+03
20	13C-2,3,4,7,8-PeCDF	1.89e+07	1.81e+04	1.0e+03	1.18e+07	2.43e+03	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.26e+06	1.18e+03	5.3e+03	1.22e+07	1.90e+03	6.4e+03
26	13C-1,2,3,4-TCDF	1.21e+07	4.44e+03	2.7e+03	1.53e+07	2.40e+03	6.4e+03
27	13C-2,3,7,8-TCDD	9.99e+06	7.30e+03	1.4e+03	1.27e+07	3.19e+03	4.0e+03
33	13C-1,2,3,4-TCDD	1.08e+07	7.30e+03	1.5e+03	1.35e+07	3.19e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.16e+07	3.04e+03	3.8e+03	9.23e+06	1.53e+03	6.0e+03
35	37Cl-2,3,7,8-TCDD	2.28e+06	2.04e+03	1.1e+03			

File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

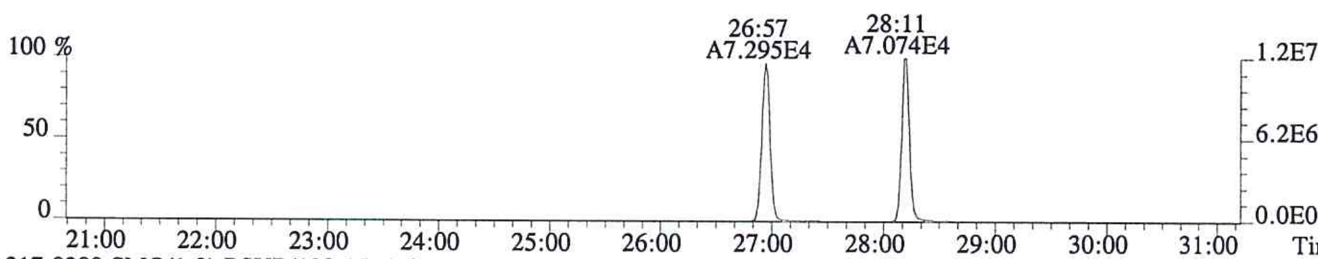
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



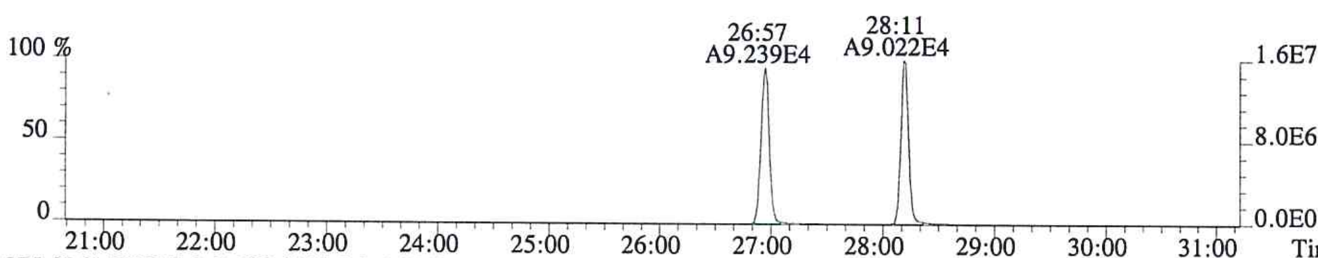
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



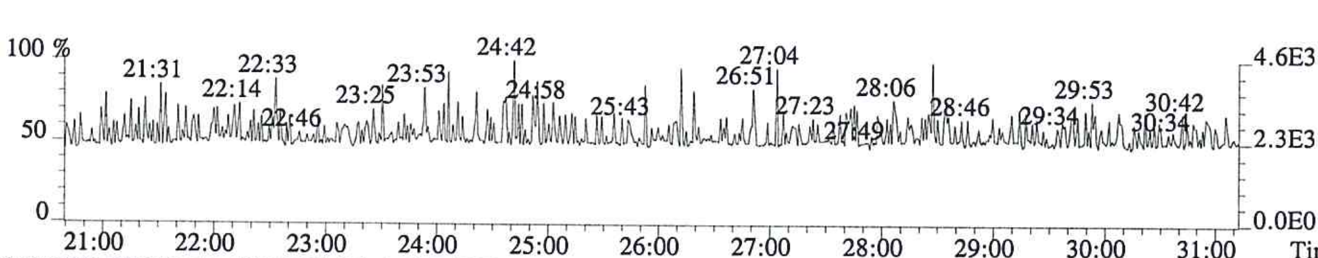
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4436.0,1.00%,F,T)



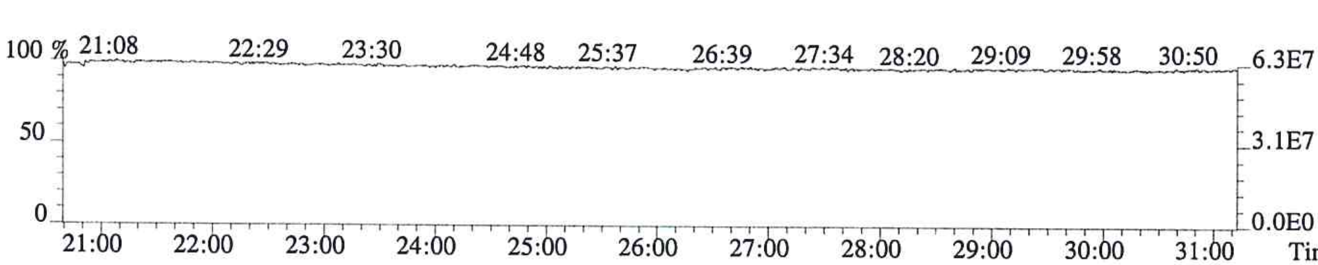
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

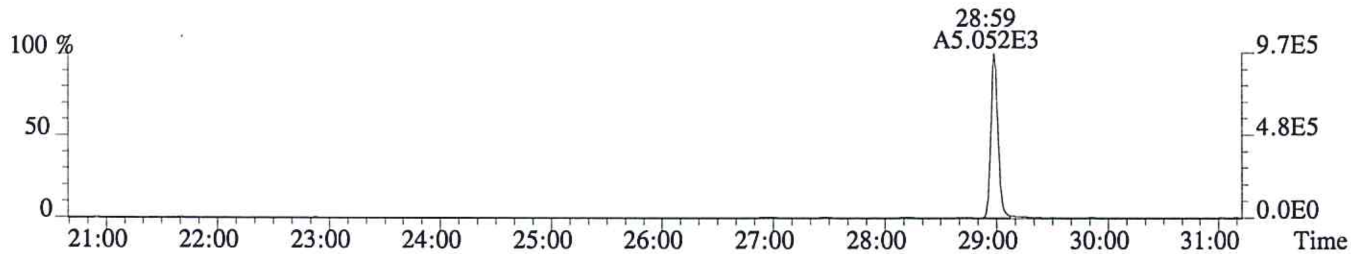


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

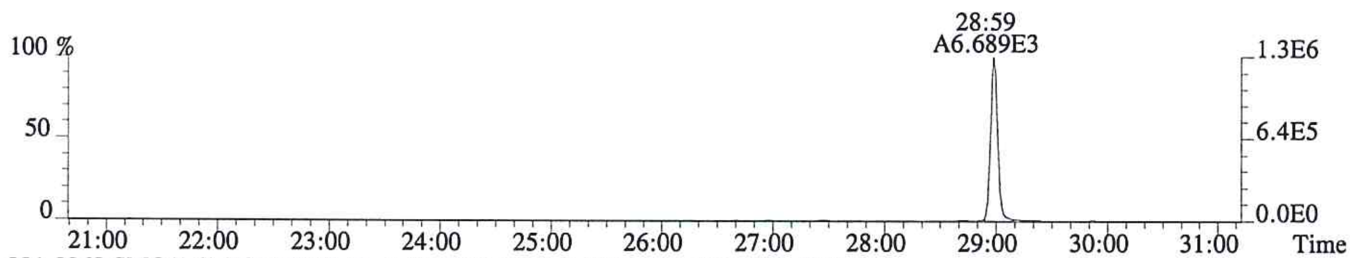


File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

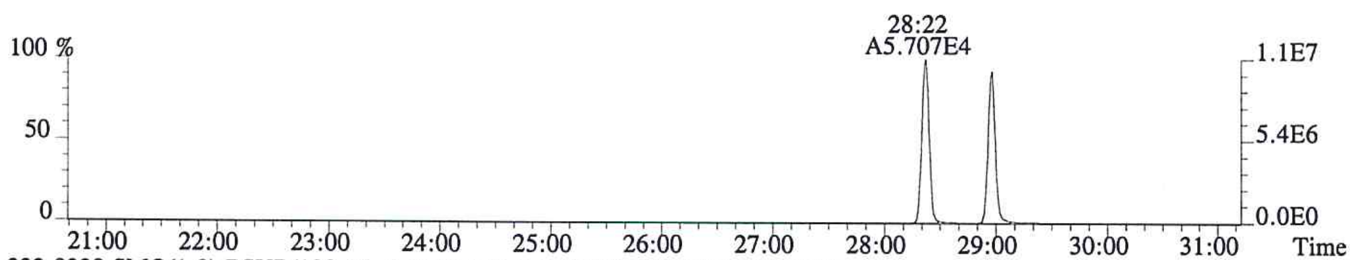
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



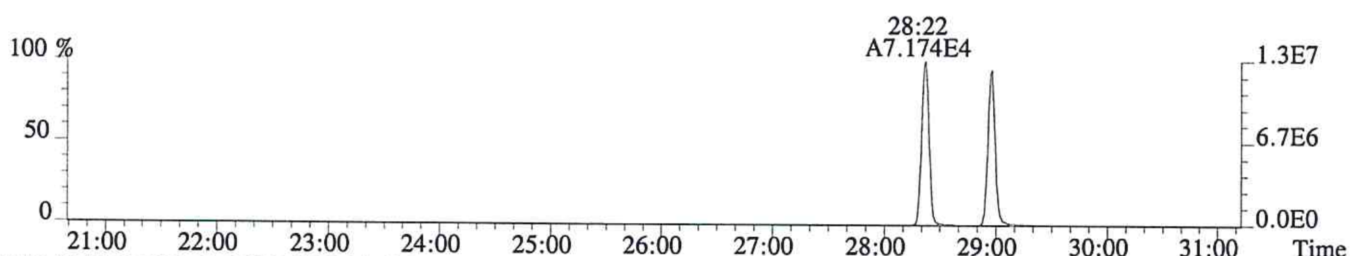
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



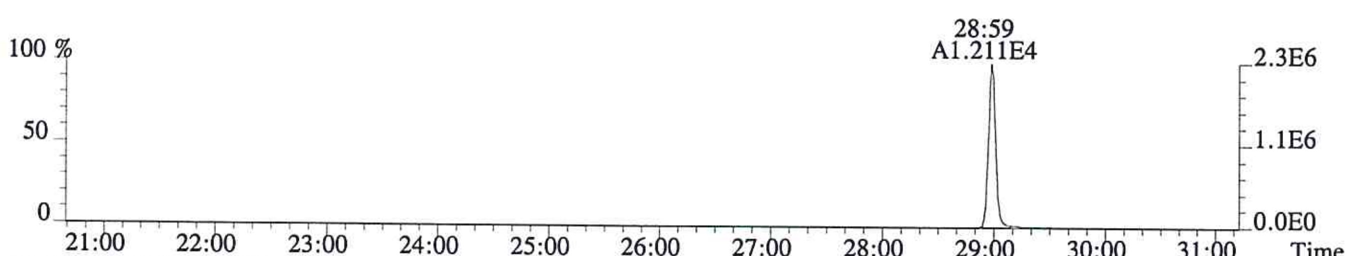
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7296.0,1.00%,F,T)



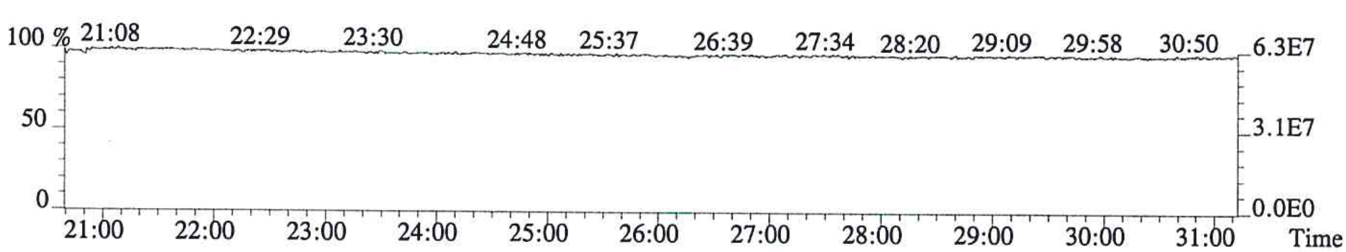
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3188.0,1.00%,F,T)



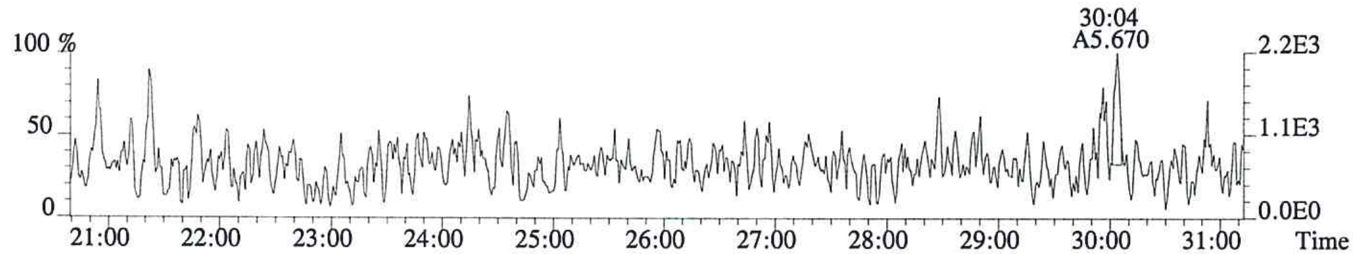
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



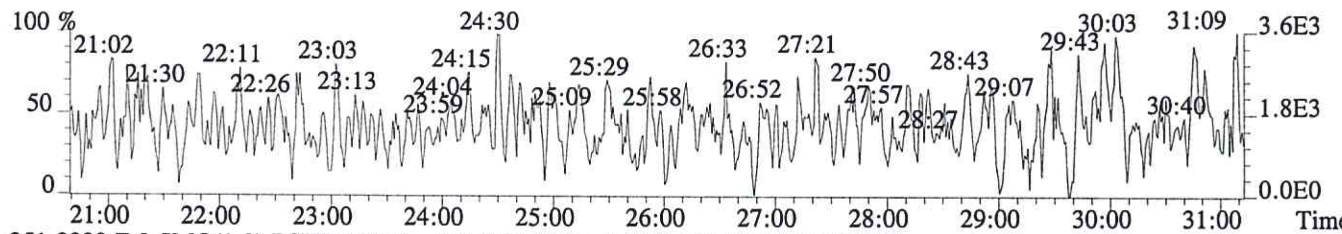
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



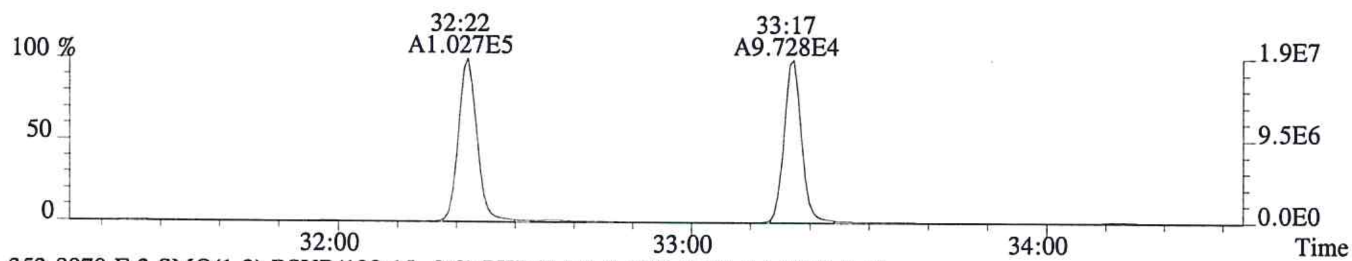
File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



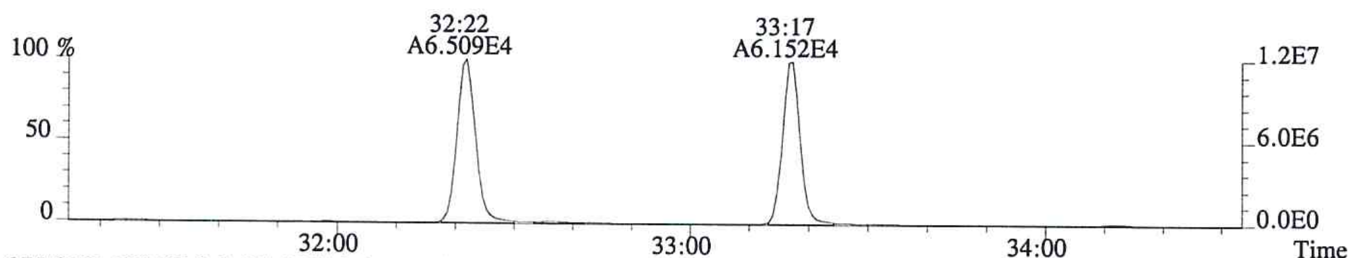
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



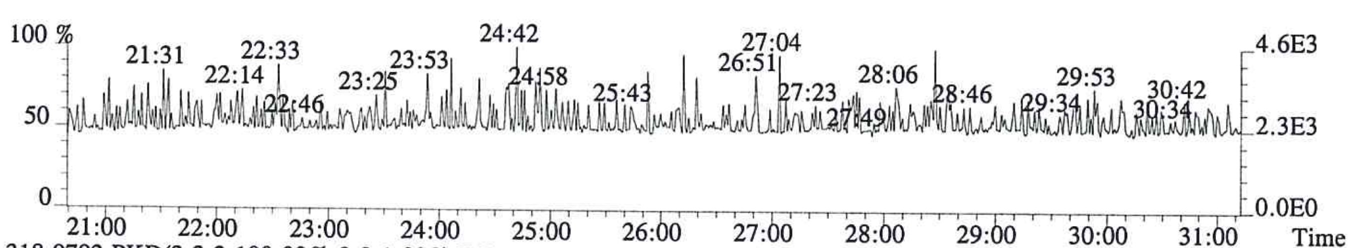
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18144.0,1.00%,F,T)



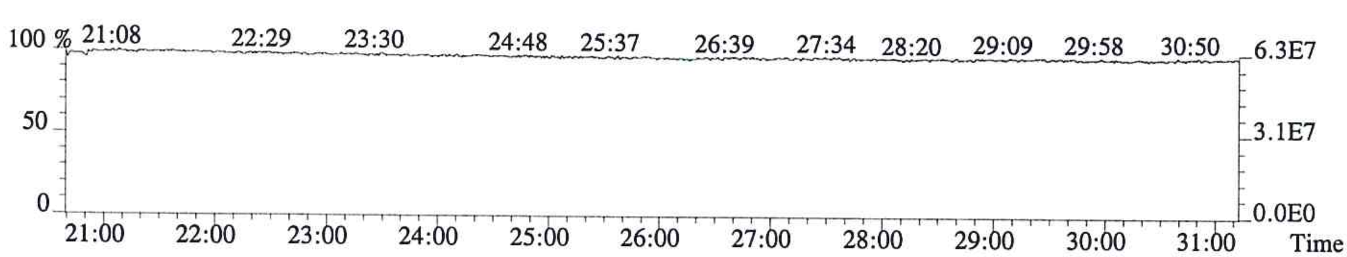
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



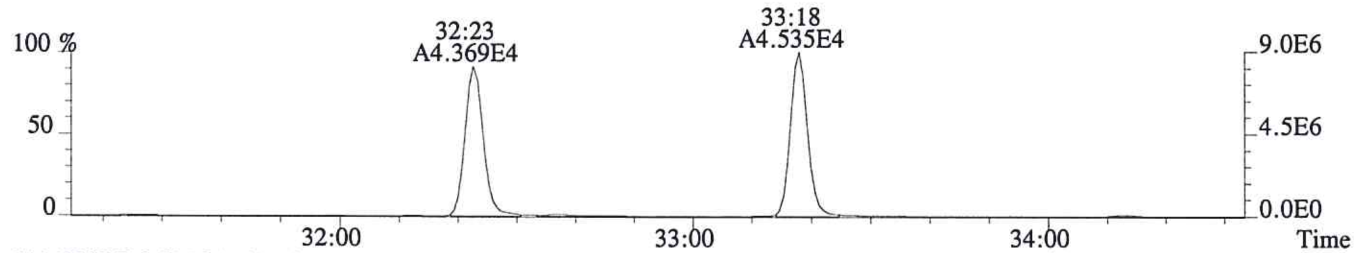
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



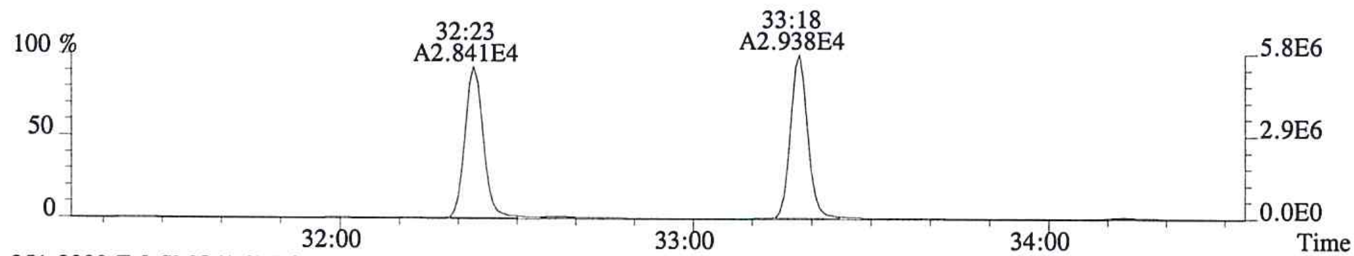
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



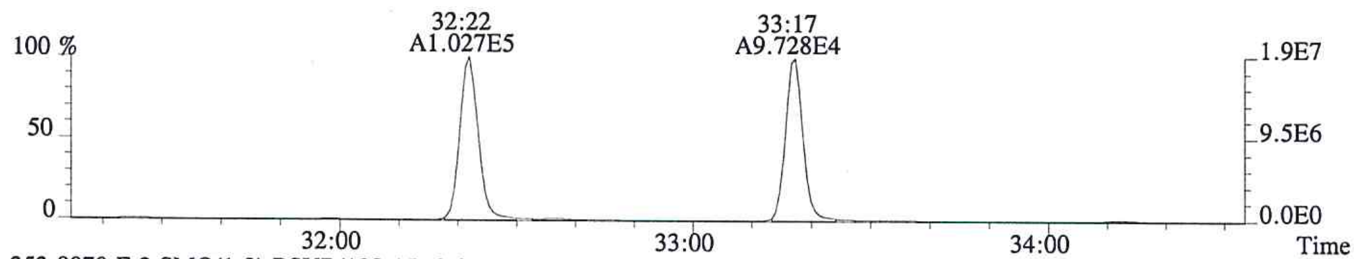
File:P604006 #1-299 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



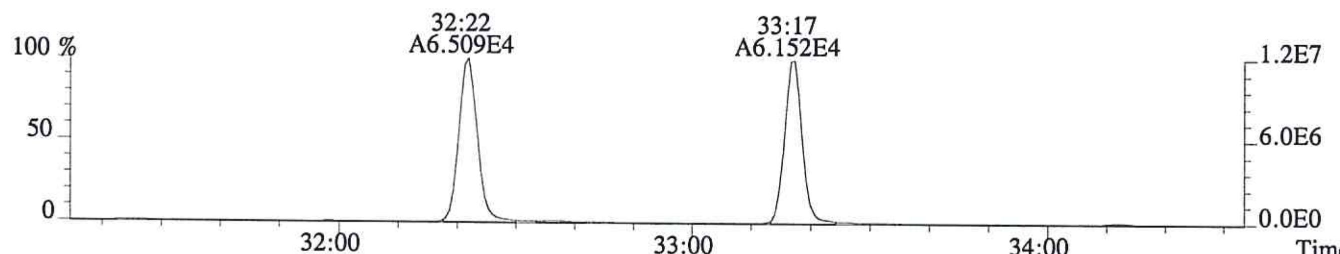
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11740.0,1.00%,F,T)



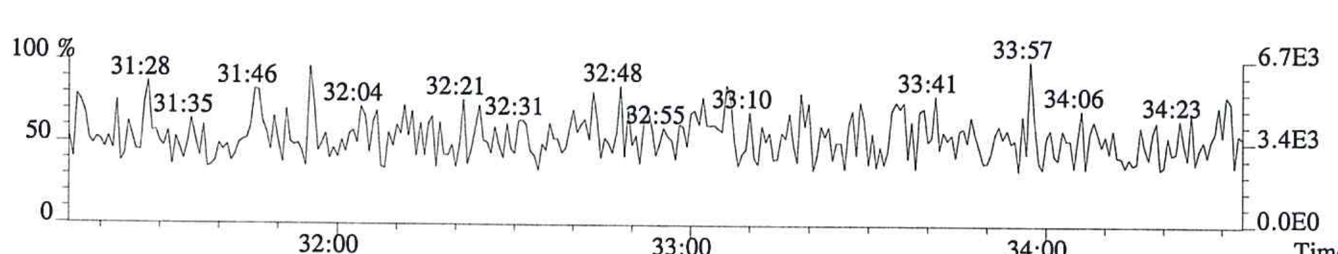
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18144.0,1.00%,F,T)



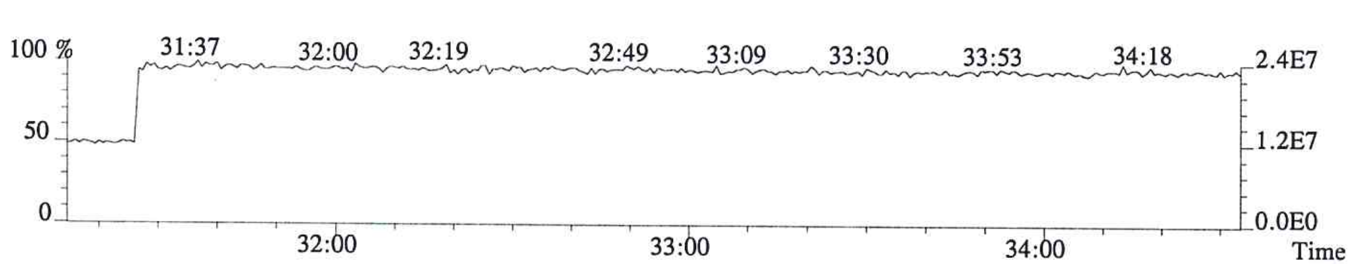
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



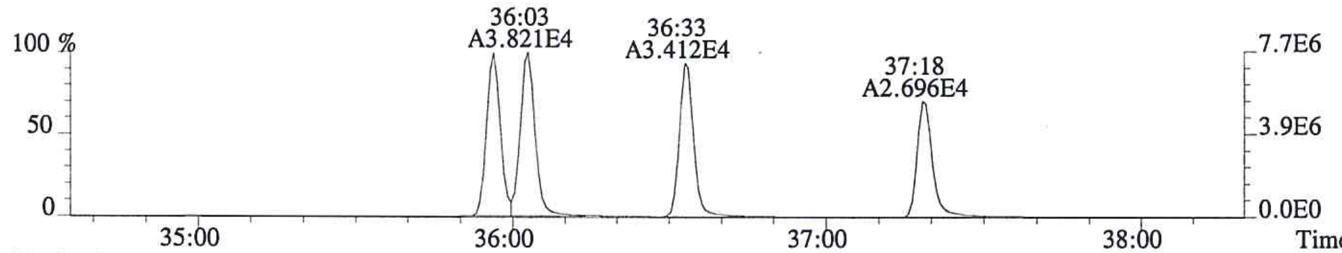
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



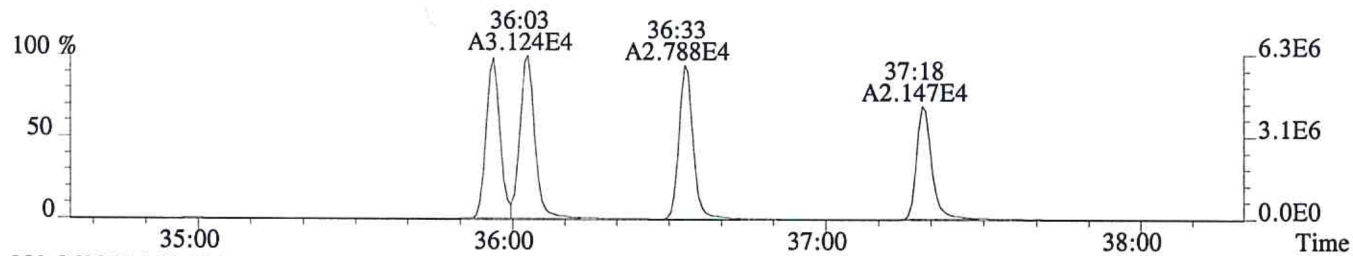
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



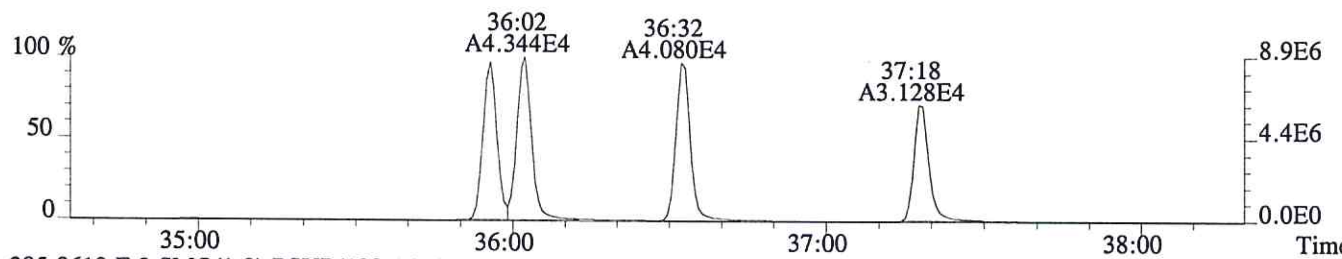
File:P604006 #1-337 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



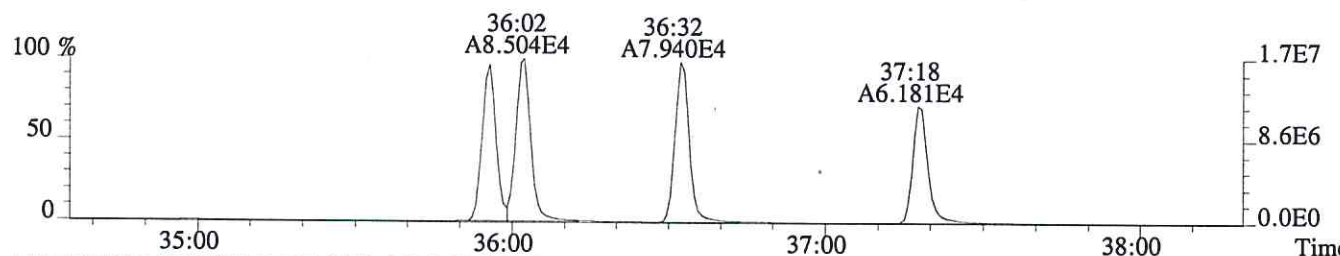
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



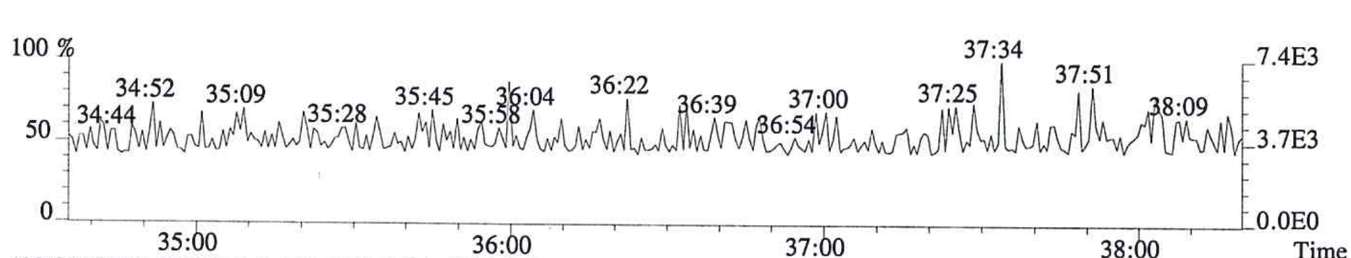
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



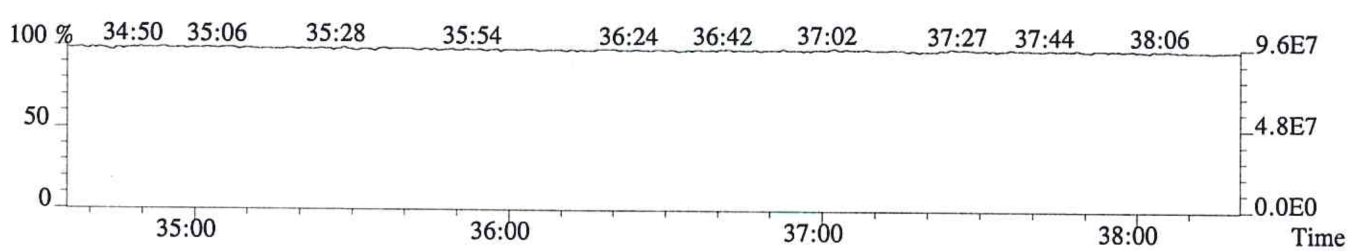
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



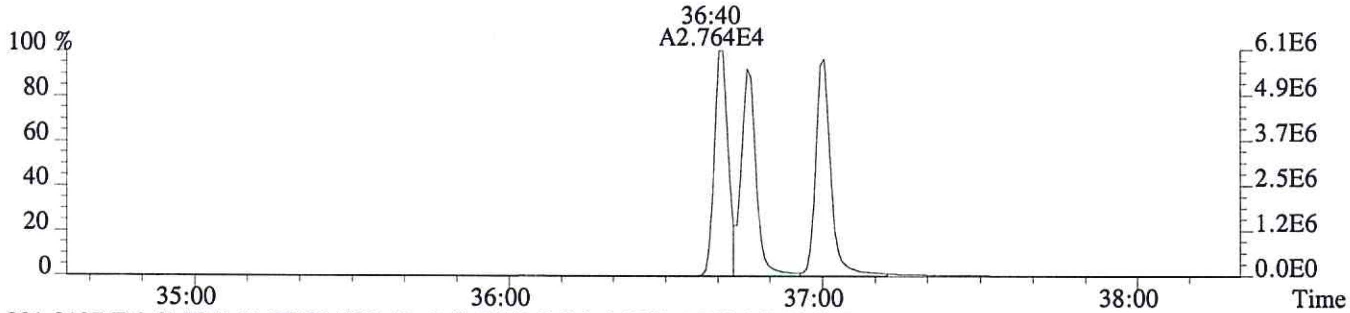
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



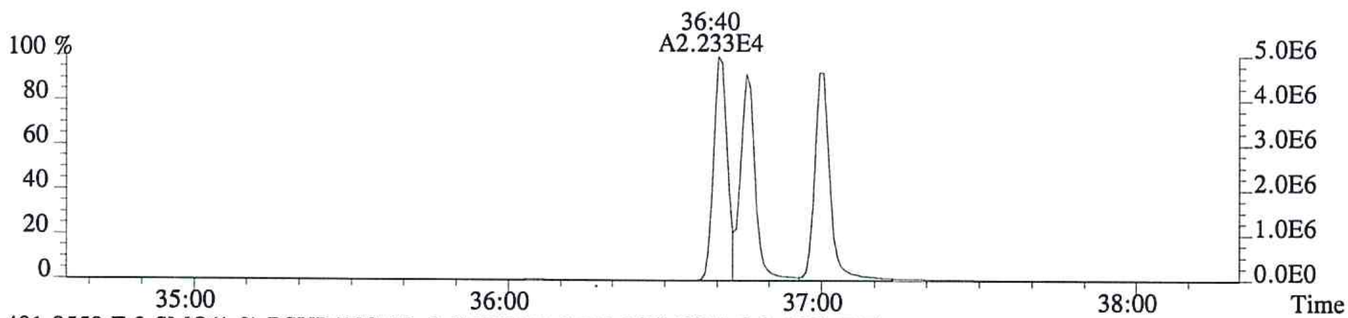
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



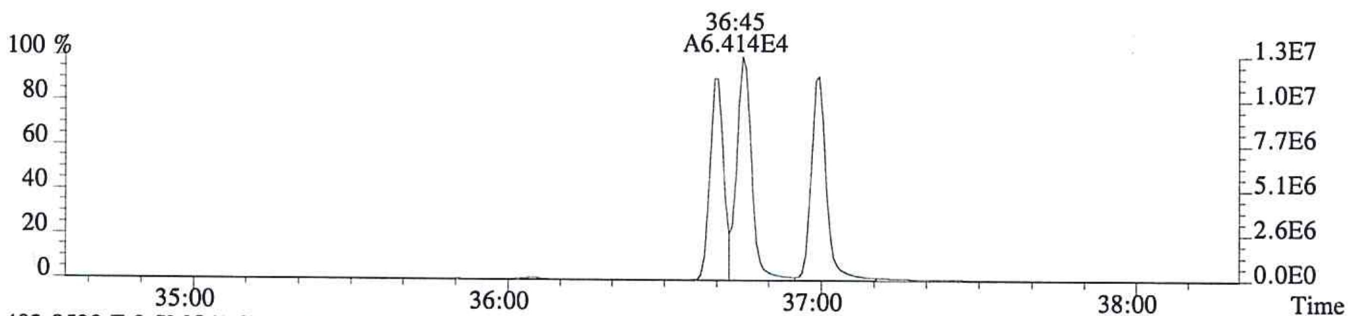
File:P604006 #1-337 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



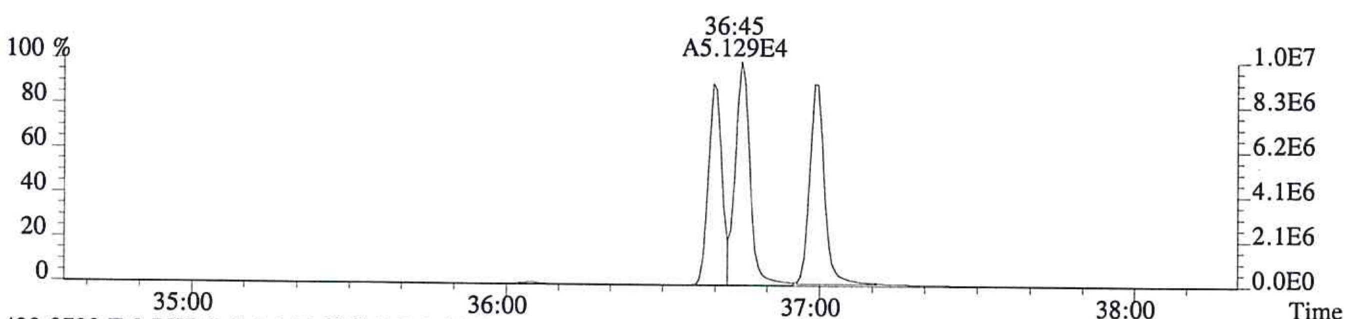
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



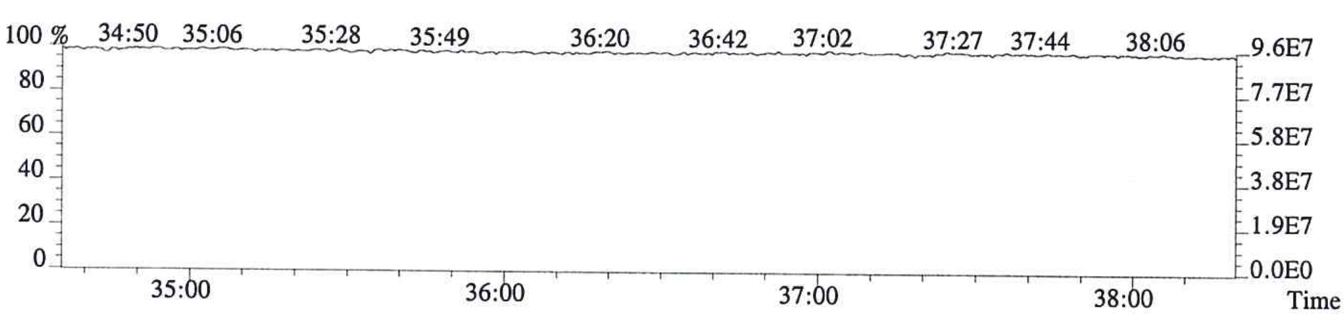
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3044.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Andy Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016				
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI				
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong				
Supervisor: Andy Neir					
Description	**Yes**	**No**	**NA**	**NR**	**ER#**
included (and legible) for the entire sequence?					
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?	√				1
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration		
Method: SPME		Process Date: 06/25/2016
Instrument Name: E-HRMS-08		Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong
ER#[5]	**Description**	
1	Manual Integration on CS1 in order to correct inconsistent baseline determinations between primary and secondary ions. Before and after chromatograms provided. Where there is no after chromatograph provided, the modification reflects an update to reconcile response values between Sample Response Summary and chromatograph.	
NA = Not Applicable; NR = Not Reviewed; R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).		

ALS ENVIRONMENTAL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603981	25-JUN-16	09:17:10
173636	CS1	P603982	25-JUN-16	10:06:18
173637	CS2	P603983	25-JUN-16	11:09:26
173638	CS3	P603984	25-JUN-16	11:55:54
173639	CS4	P603985	25-JUN-16	12:52:51
173640	CS5	P603986	25-JUN-16	13:45:46
CS3 2ND SOURCE	CS3 2ND SOURCE	P603988	25-JUN-16	15:21:10

FORM V PCDD-3 10/90

E1600326

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160625.SPL Page 1 of 2
Last Modified: Friday, July 01, 2016 08:45:44 Eastern Daylight Time
Printed: Friday, July 01, 2016 08:48:07 Eastern Daylight Time Page Position (1, 1)

OPUS4: P6-160625SPMEI opus 4: P603988 res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	09:17	P603981	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 09:11
2		10:06	P603982	173636	CS1	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:09	P603983	173637	CS2	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		11:55	P603984	173638	CS3	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		12:52	P603985	173639	CS4	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		13:45	P603986	173640	CS5	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		14:32	P603987	NONANE	NONANE	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:21	P603988	CS3 2ND SOURCE	CS3 2ND SOURCE	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		16:34	P603989	NONANE	NONANE	Tray1:9	EPA1613_ALS	Dioxin_ALS		HRMS check 16:28
10			---	---	---	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11			---	---	---	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12			---	---	---	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13			---	---	---	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

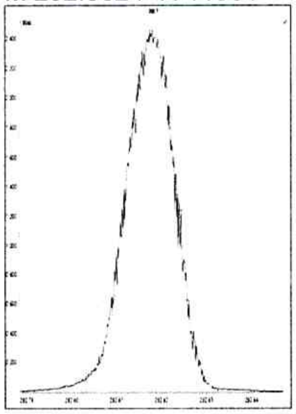
Processed: 06/25/16 JC

Logbook Form updated 07/01/16 to input lab sample ID's

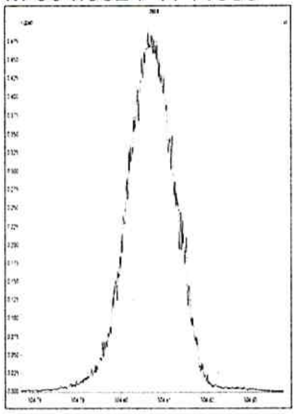
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:11:20 Eastern Daylight Time

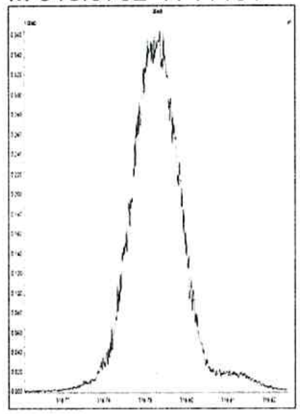
M 292.9824 R 11961



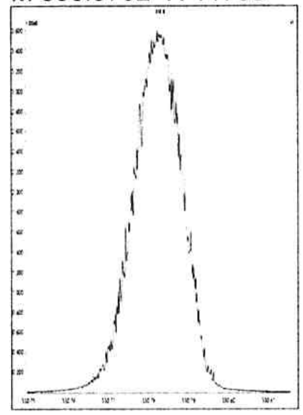
M 304.9824 R 11908



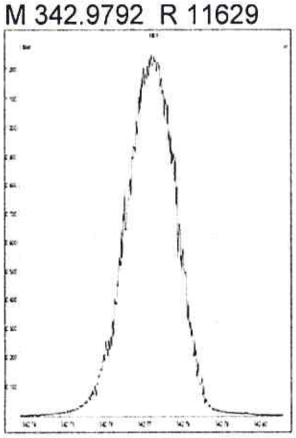
M 318.9792 R 11161



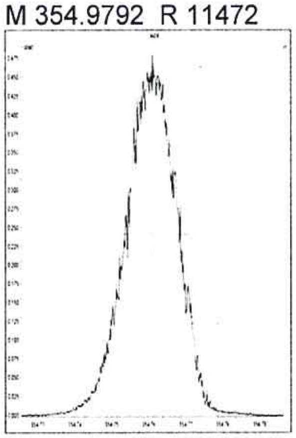
M 330.9792 R 11736



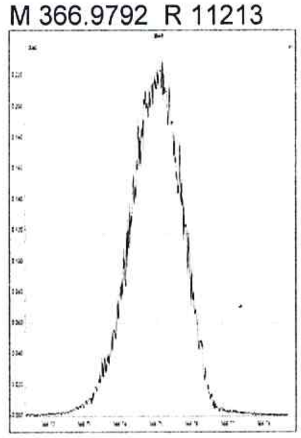
M 342.9792 R 11629



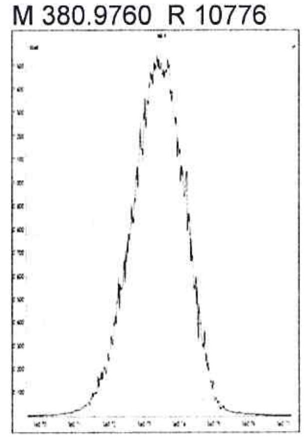
M 354.9792 R 11472



M 366.9792 R 11213



M 380.9760 R 10776

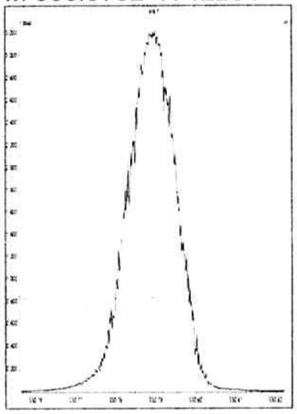


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

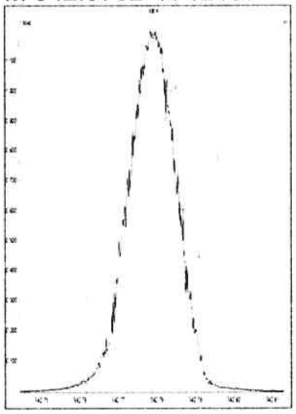
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:12:33 Eastern Daylight Time

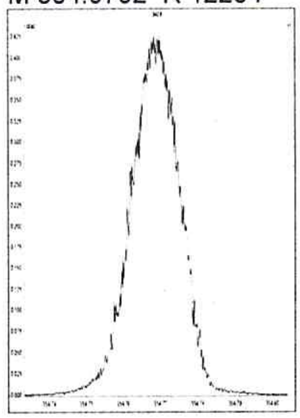
M 330.9792 R 12254



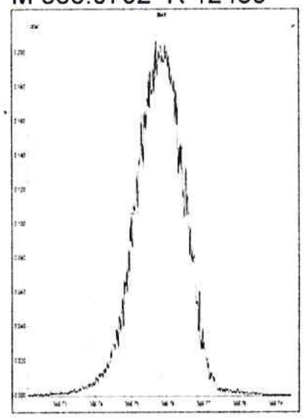
M 342.9792 R 12197



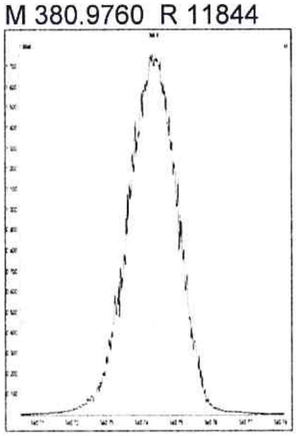
M 354.9792 R 12254



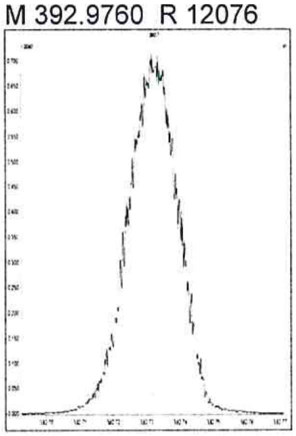
M 366.9792 R 12435



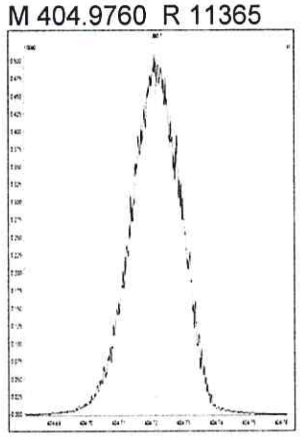
M 380.9760 R 11844



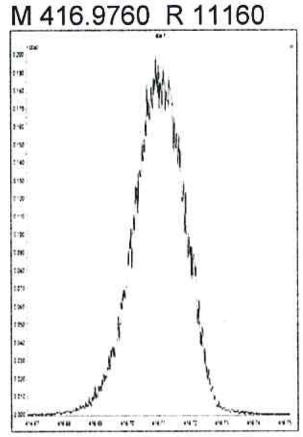
M 392.9760 R 12076



M 404.9760 R 11365



M 416.9760 R 11160

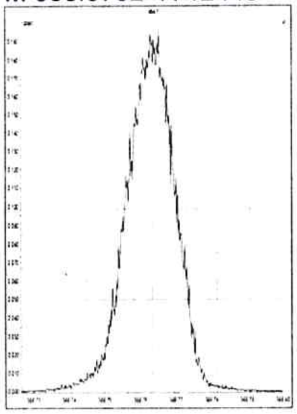


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

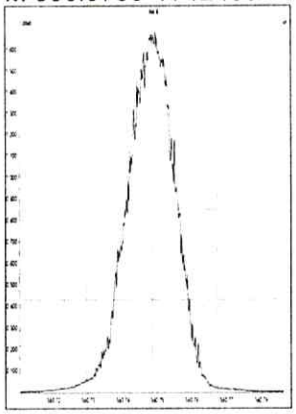
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:13:42 Eastern Daylight Time

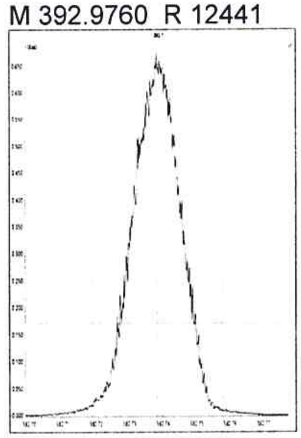
M 366.9792 R 12440



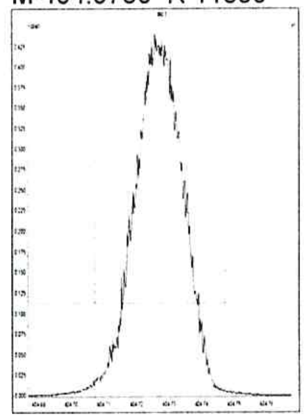
M 380.9760 R 12439



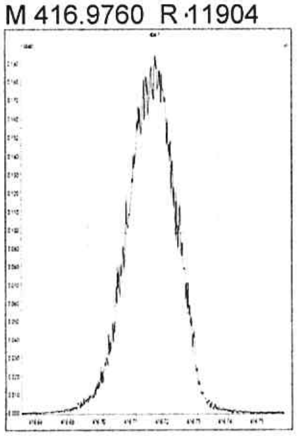
M 392.9760 R 12441



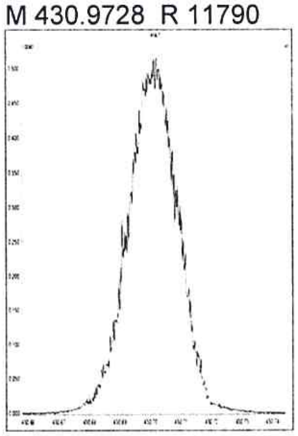
M 404.9760 R 11850



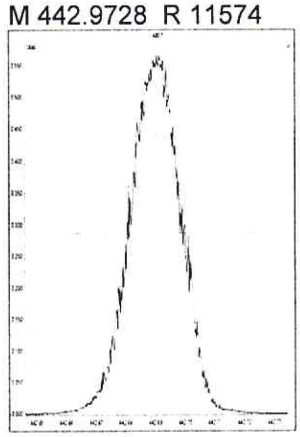
M 416.9760 R 11904



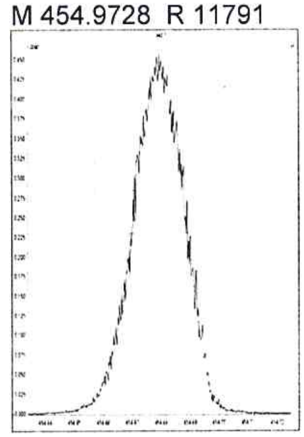
M 430.9728 R 11790



M 442.9728 R 11574



M 454.9728 R 11791

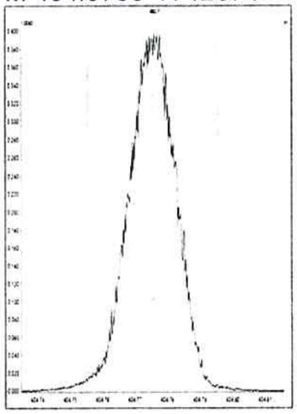


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

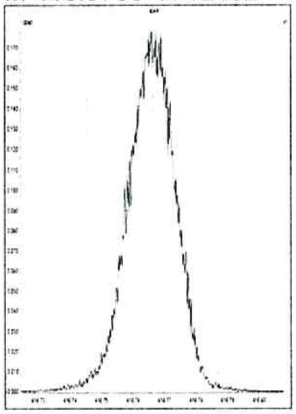
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:14:56 Eastern Daylight Time

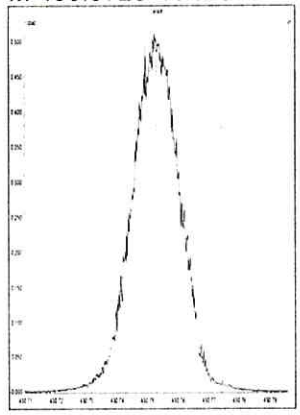
M 404.9760 R 12374



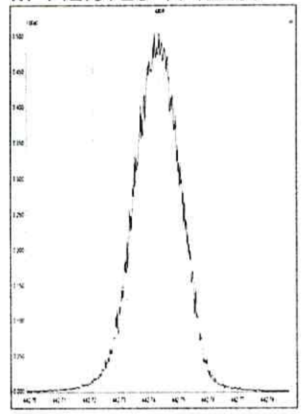
M 416.9760 R 12132



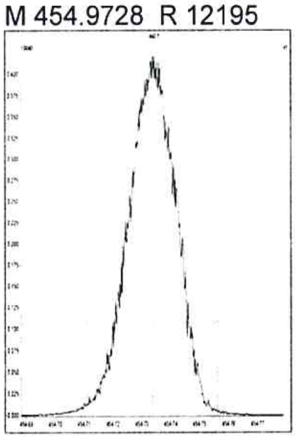
M 430.9728 R 12376



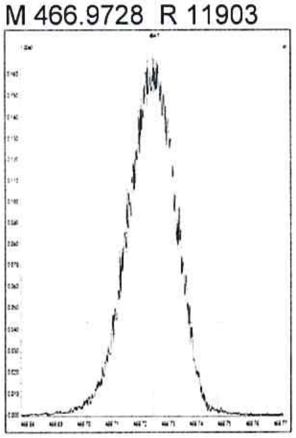
M 442.9728 R 12257



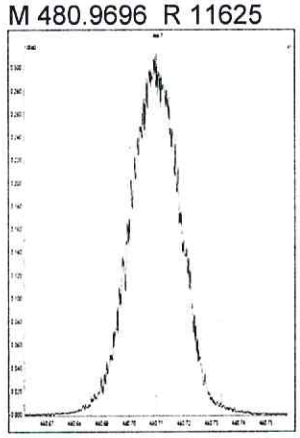
M 454.9728 R 12195



M 466.9728 R 11903



M 480.9696 R 11625

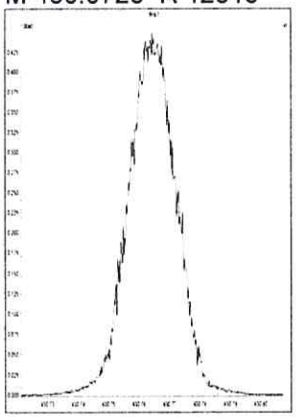


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

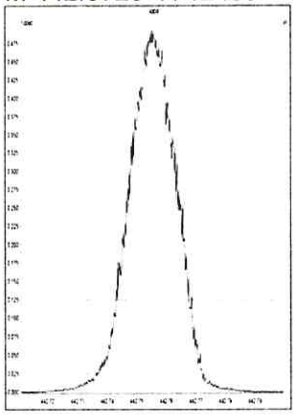
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:16:07 Eastern Daylight Time

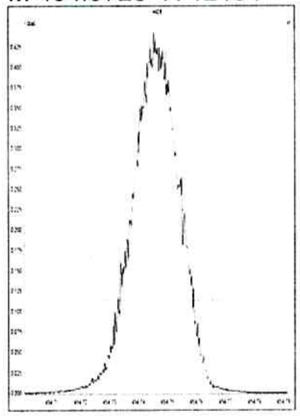
M 430.9728 R 12315



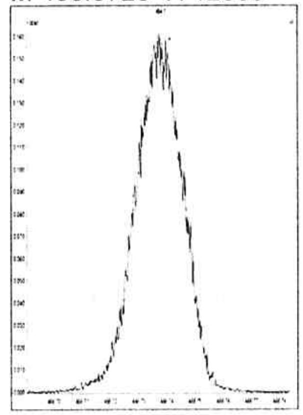
M 442.9728 R 12436



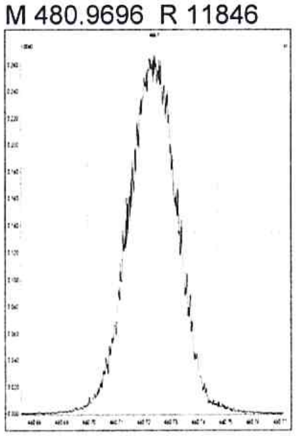
M 454.9728 R 12191



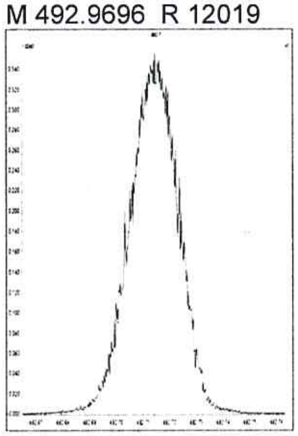
M 466.9728 R 12689



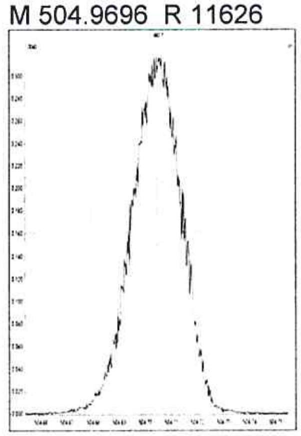
M 480.9696 R 11846



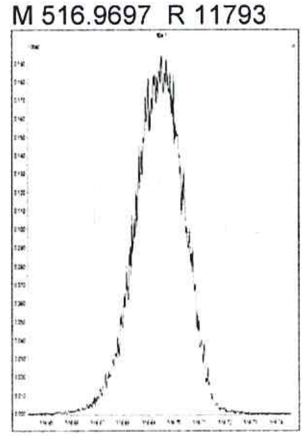
M 492.9696 R 12019



M 504.9696 R 11626



M 516.9697 R 11793

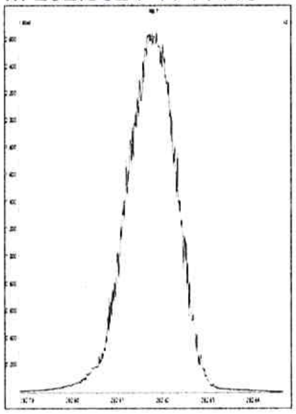


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

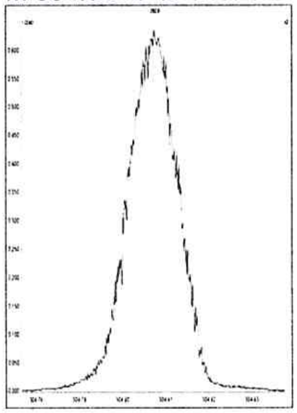
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

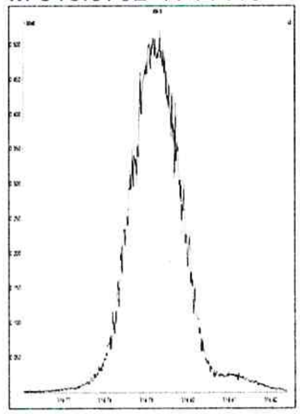
M 292.9824 R 11415



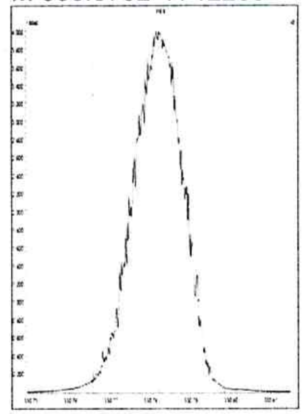
M 304.9824 R 12074



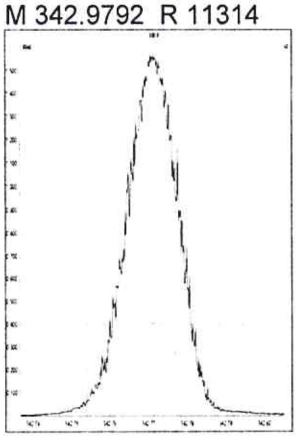
M 318.9792 R 11416



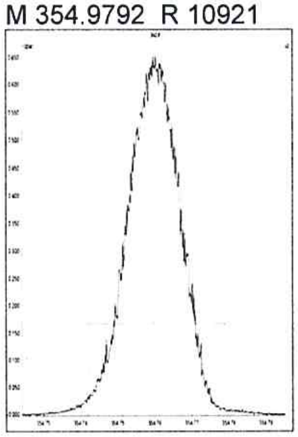
M 330.9792 R 12259



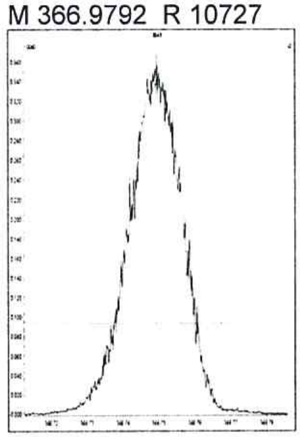
M 342.9792 R 11314



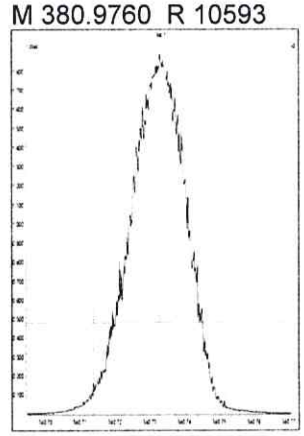
M 354.9792 R 10921



M 366.9792 R 10727



M 380.9760 R 10593

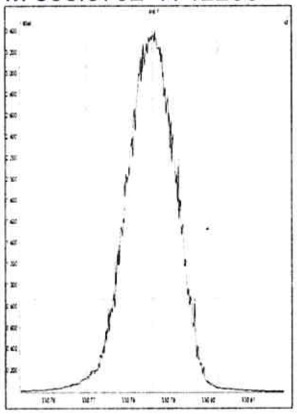


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

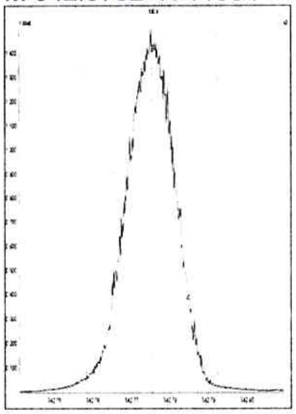
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

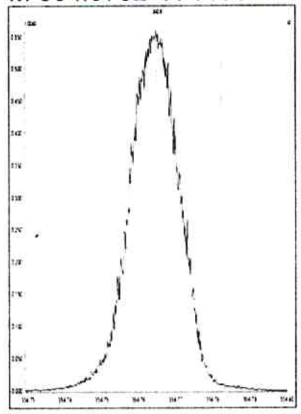
M 330.9792 R 12253



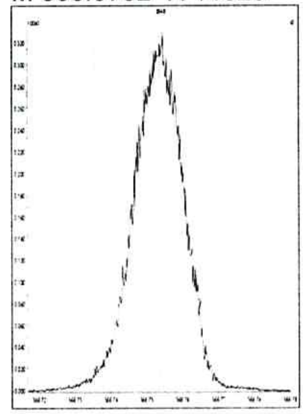
M 342.9792 R 11684



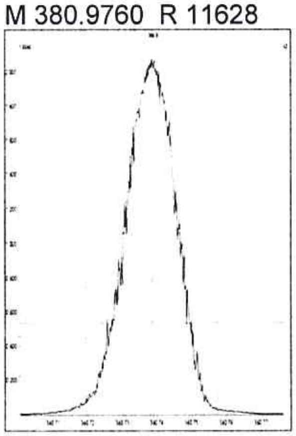
M 354.9792 R 11904



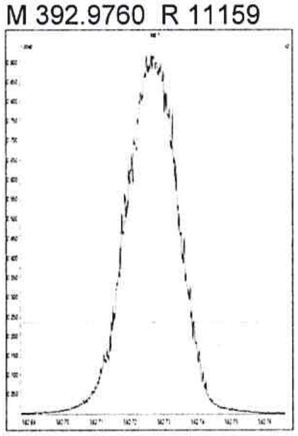
M 366.9792 R 11523



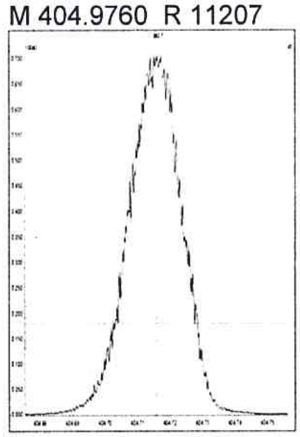
M 380.9760 R 11628



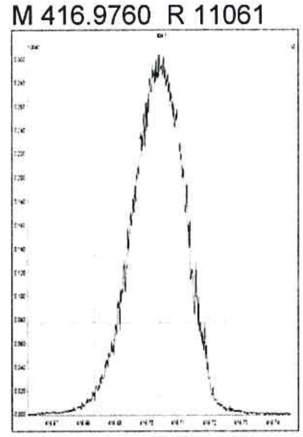
M 392.9760 R 11159



M 404.9760 R 11207



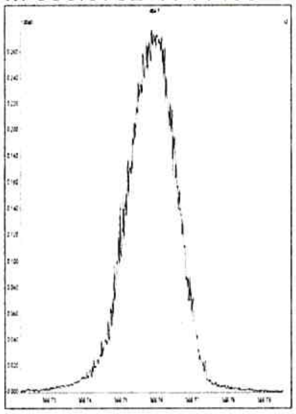
M 416.9760 R 11061



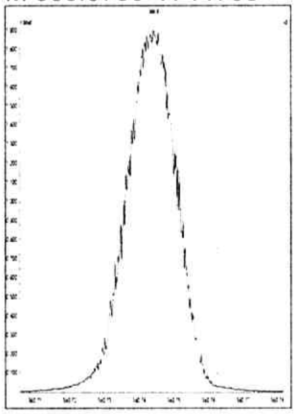
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

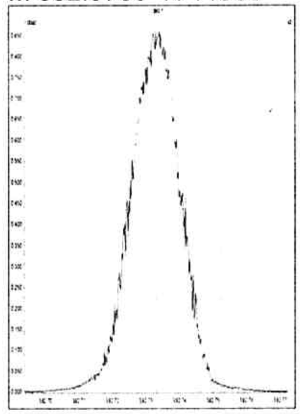
M 366.9792 R 11465



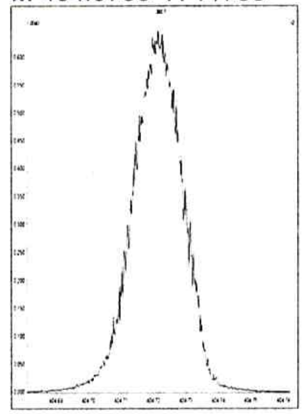
M 380.9760 R 11738



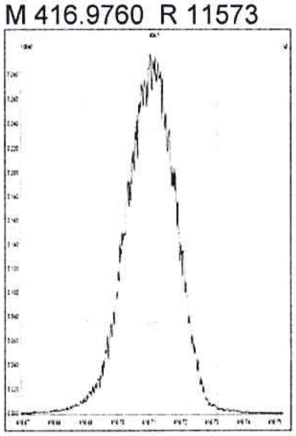
M 392.9760 R 11903



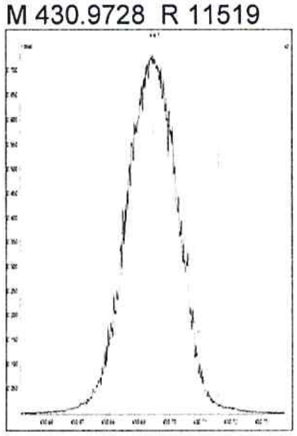
M 404.9760 R 11738



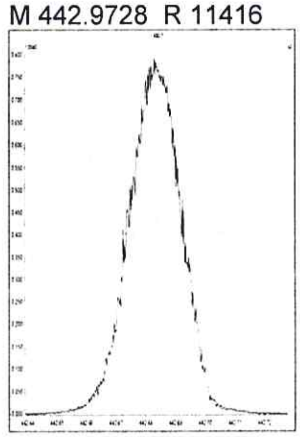
M 416.9760 R 11573



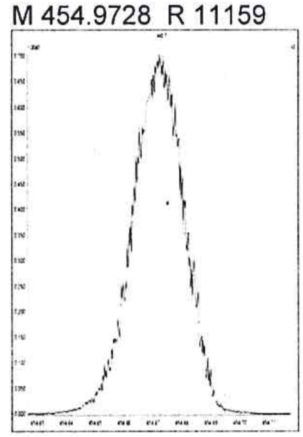
M 430.9728 R 11519



M 442.9728 R 11416



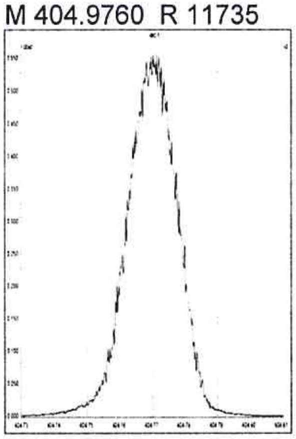
M 454.9728 R 11159



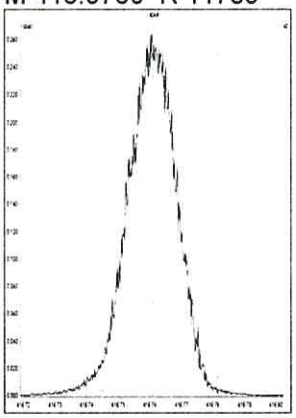
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

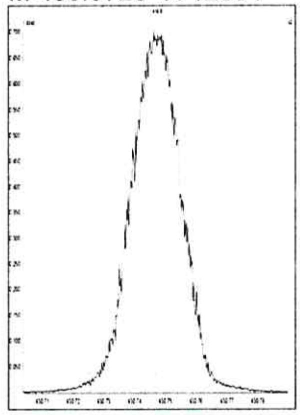
M 404.9760 R 11735



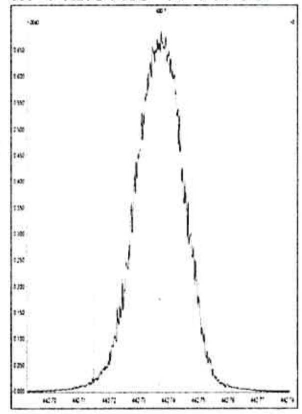
M 416.9760 R 11789



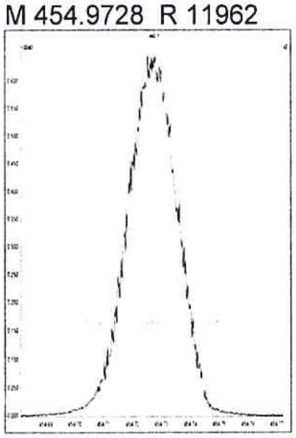
M 430.9728 R 12081



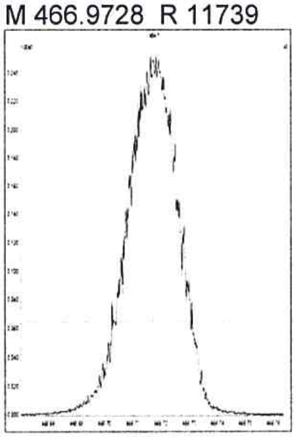
M 442.9728 R 11963



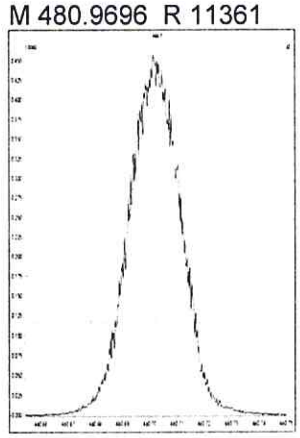
M 454.9728 R 11962



M 466.9728 R 11739



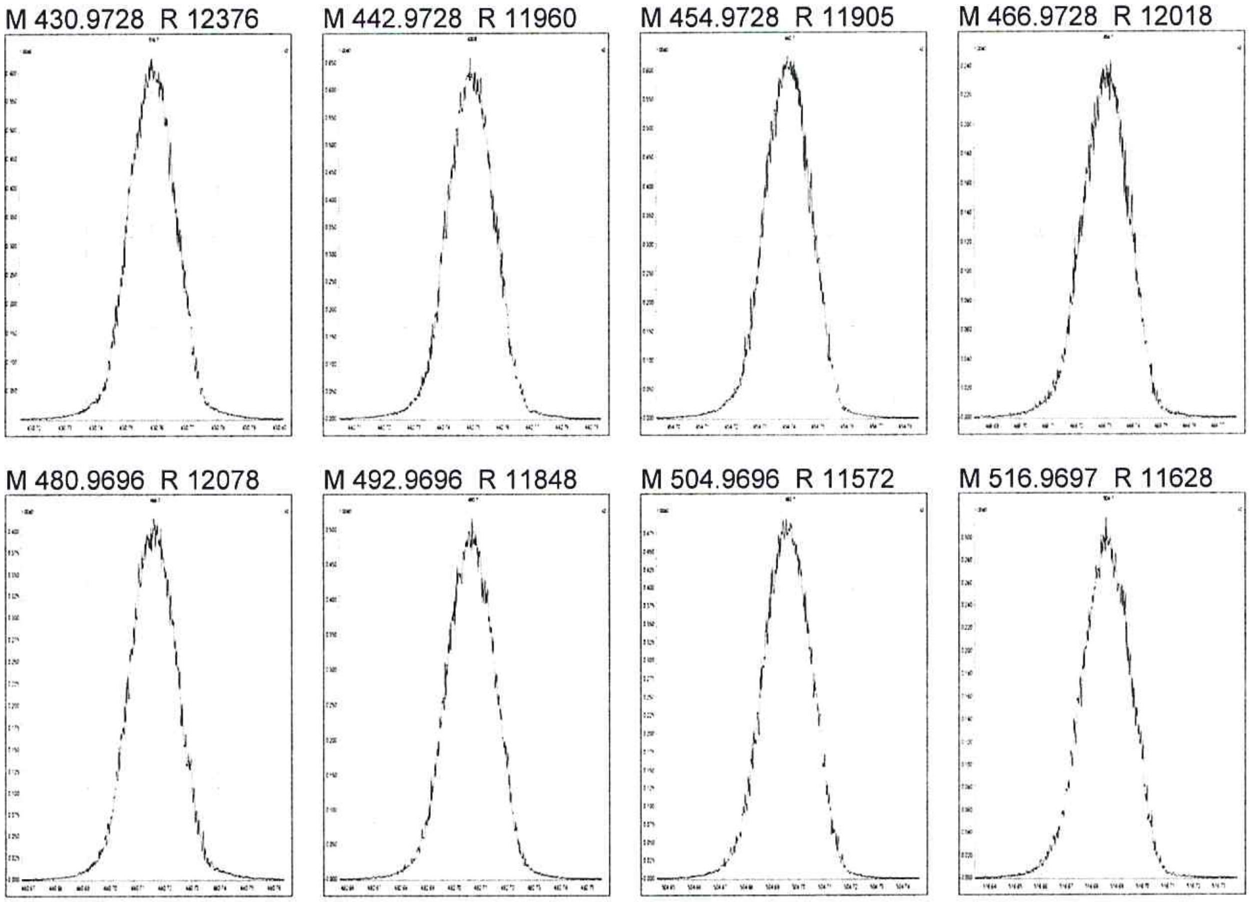
M 480.9696 R 11361



Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

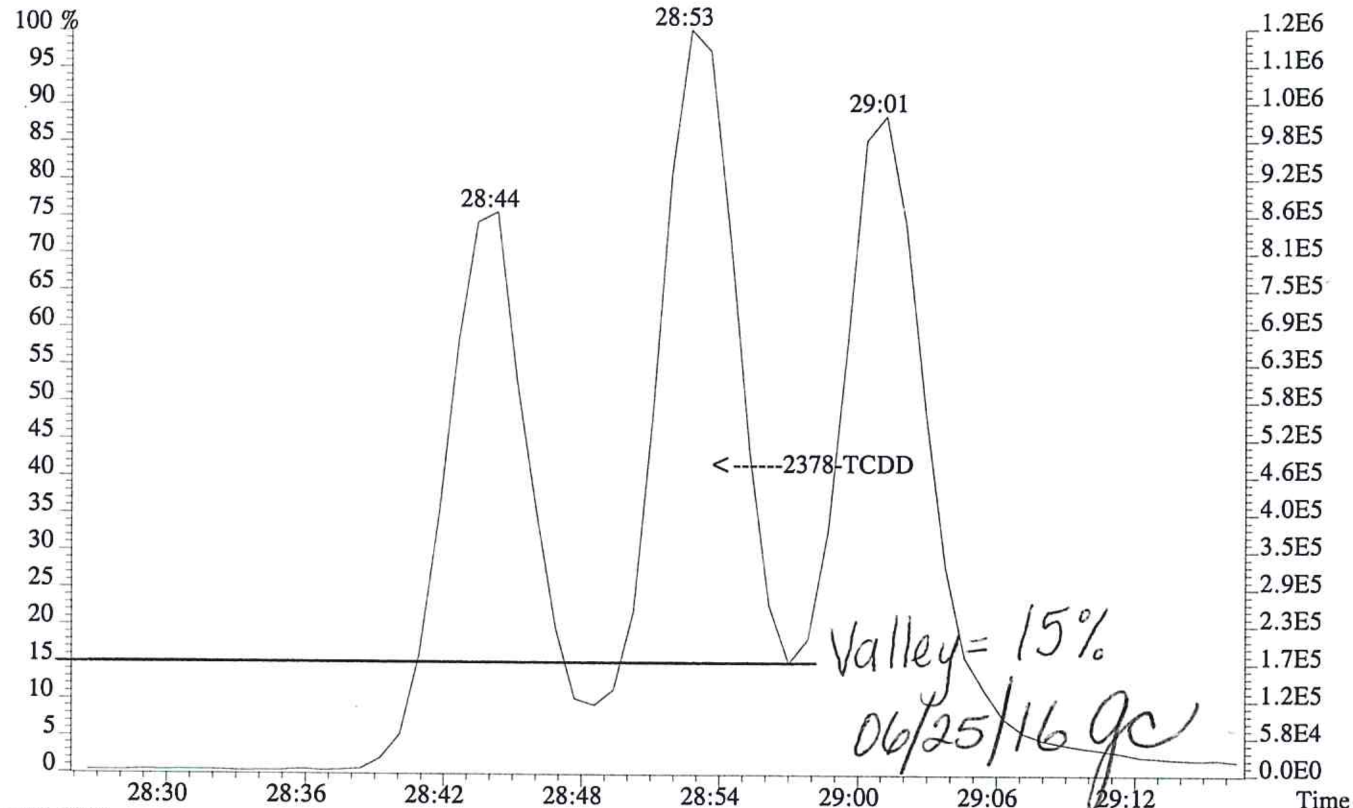
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX   Case No.: ______   SDG No.:
GC Column: DB-5MSUI   ID: 0.25 (mm)   Lab File ID: P603981
Date Analyzed: 25-JUN-2016
Time Analyzed: 09:17:10

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:42	30:05
TCDD	25:33	29:54
PeCDF	29:58	34:14
PeCDD	31:30	33:58
HxCDF	34:50	37:22
HxCDD	35:22	36:57
HpCDF	38:33	39:58
HpCDD	38:47	39:28

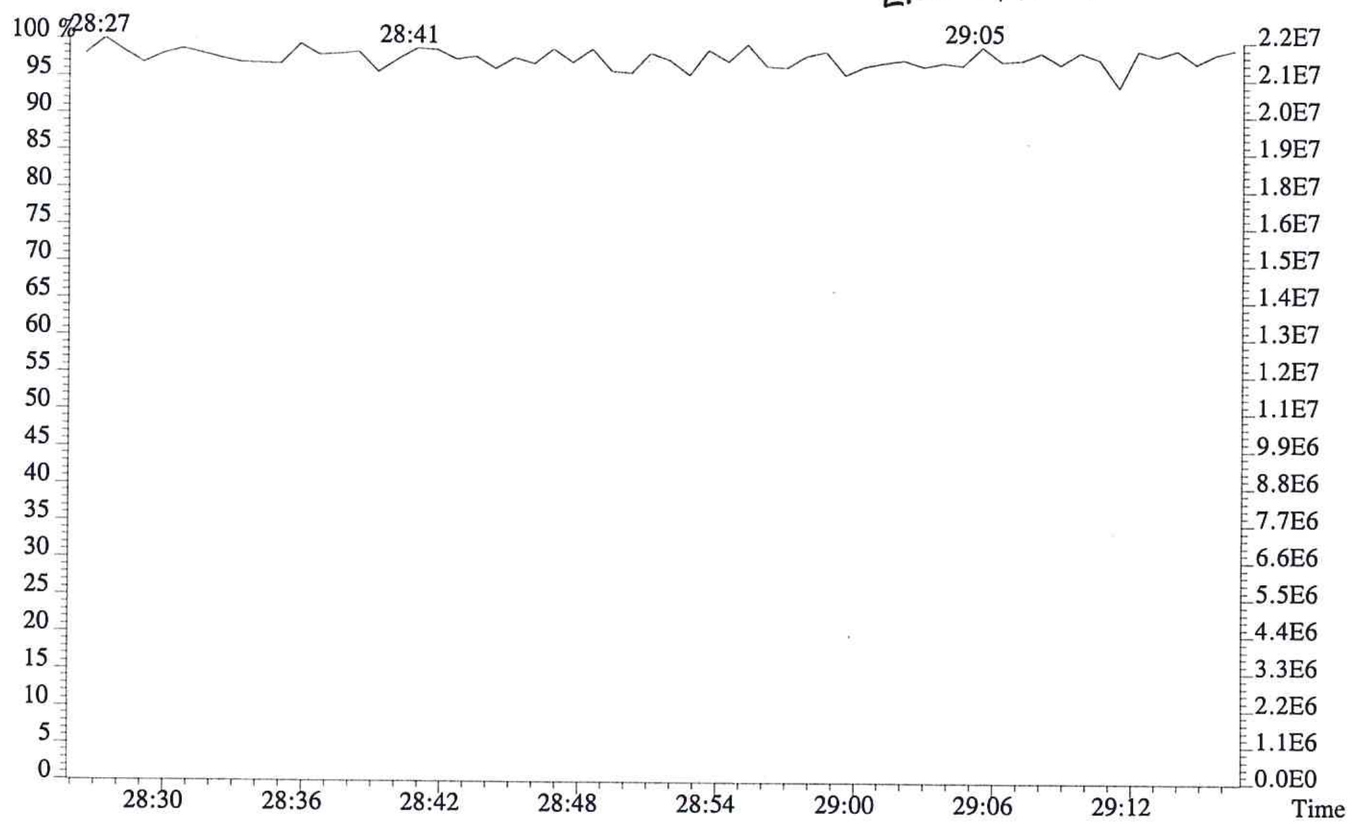
% Valley 2378-TCDD: 15 %

File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

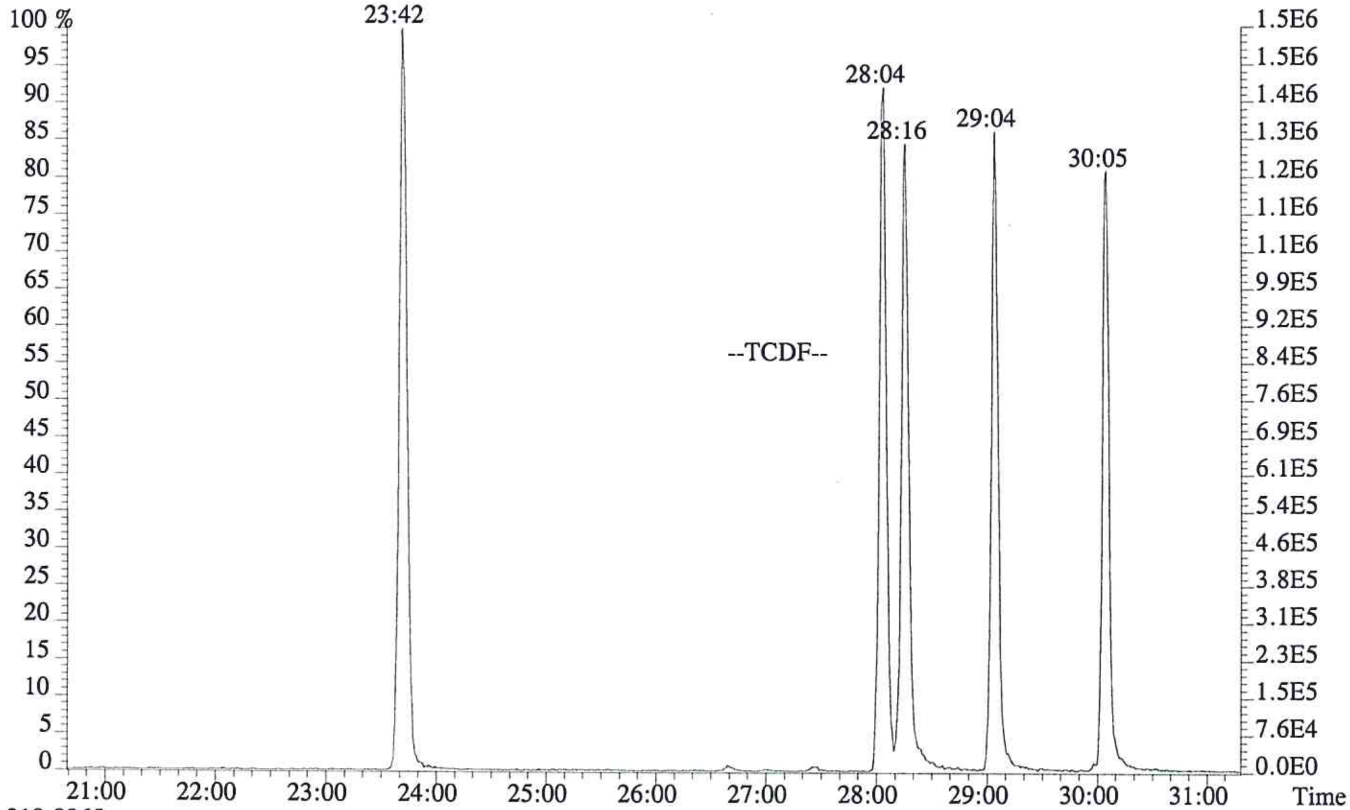


318.9792

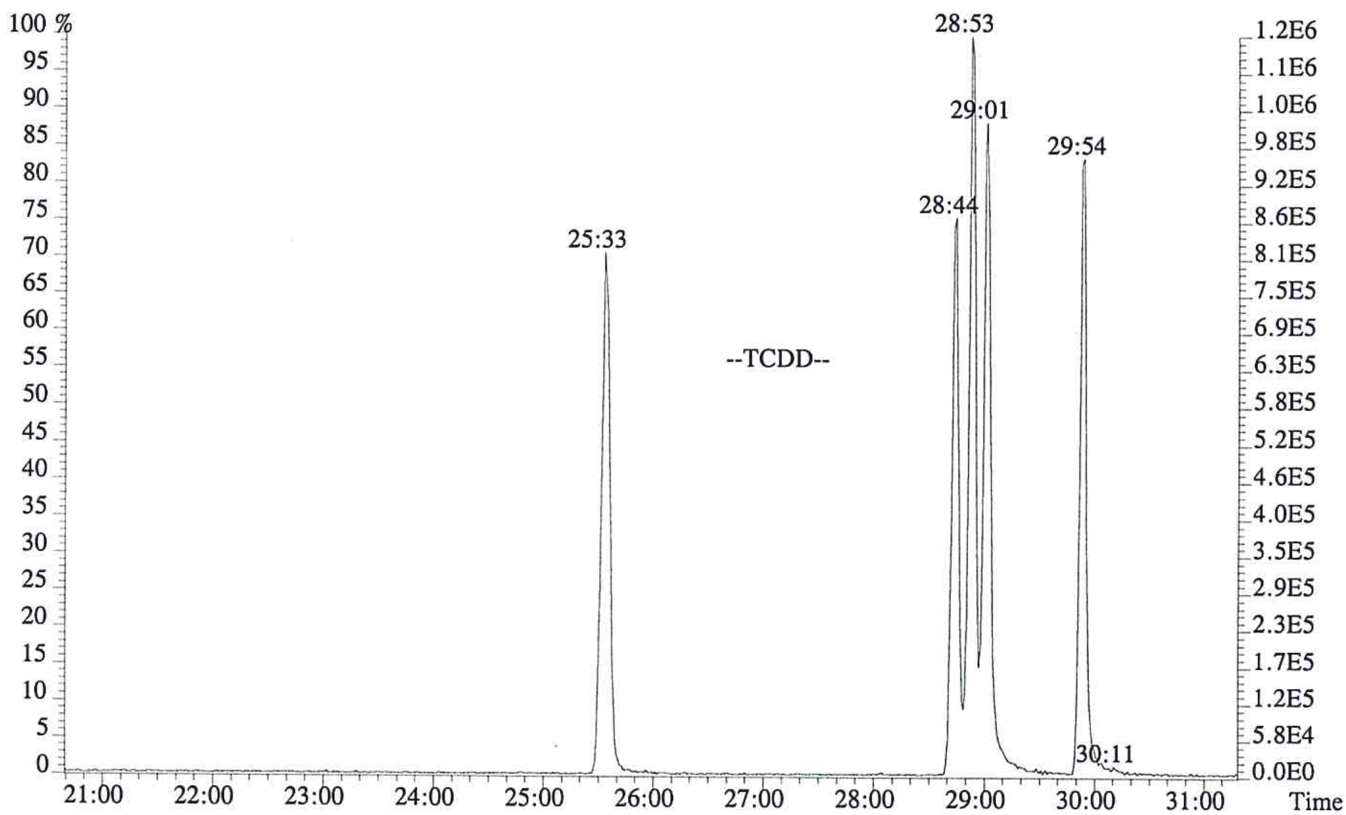
LKL 07/05/16



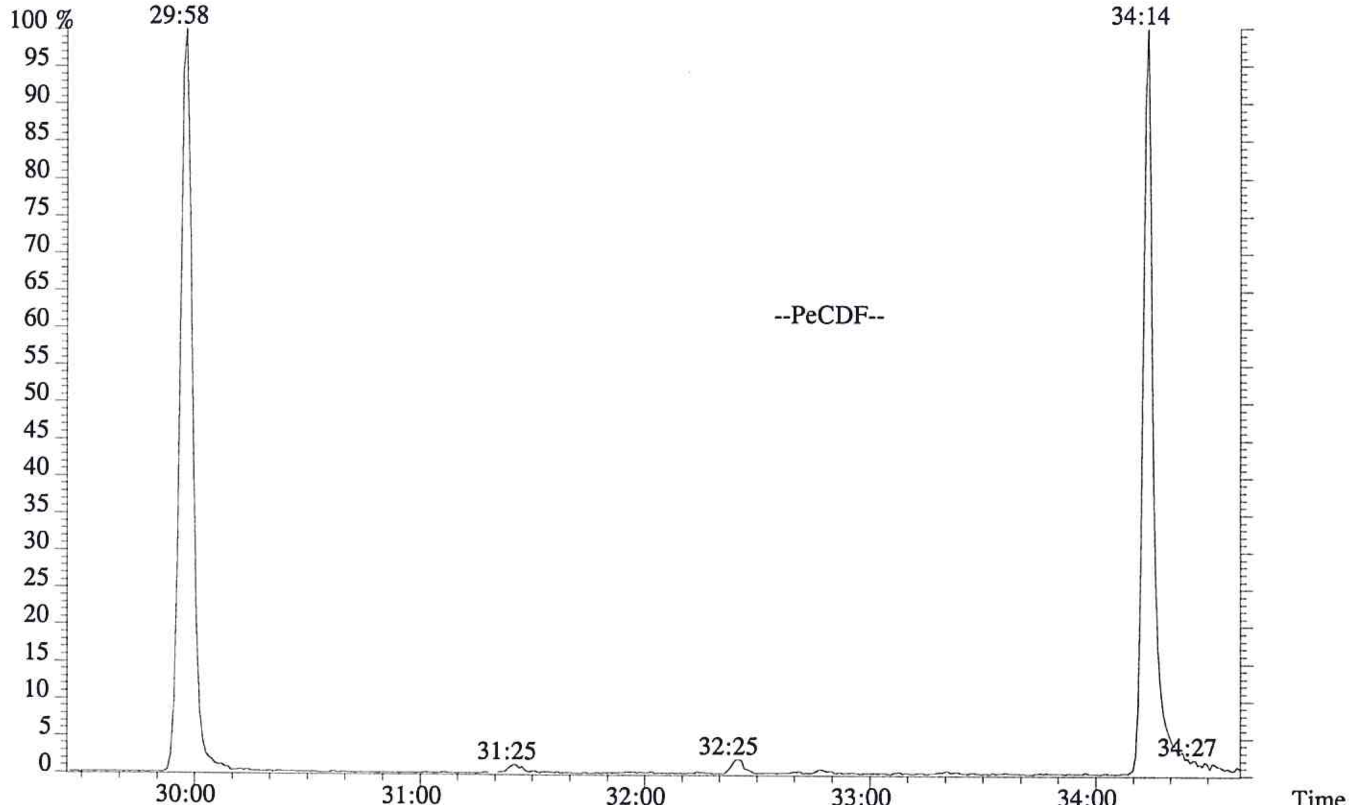
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



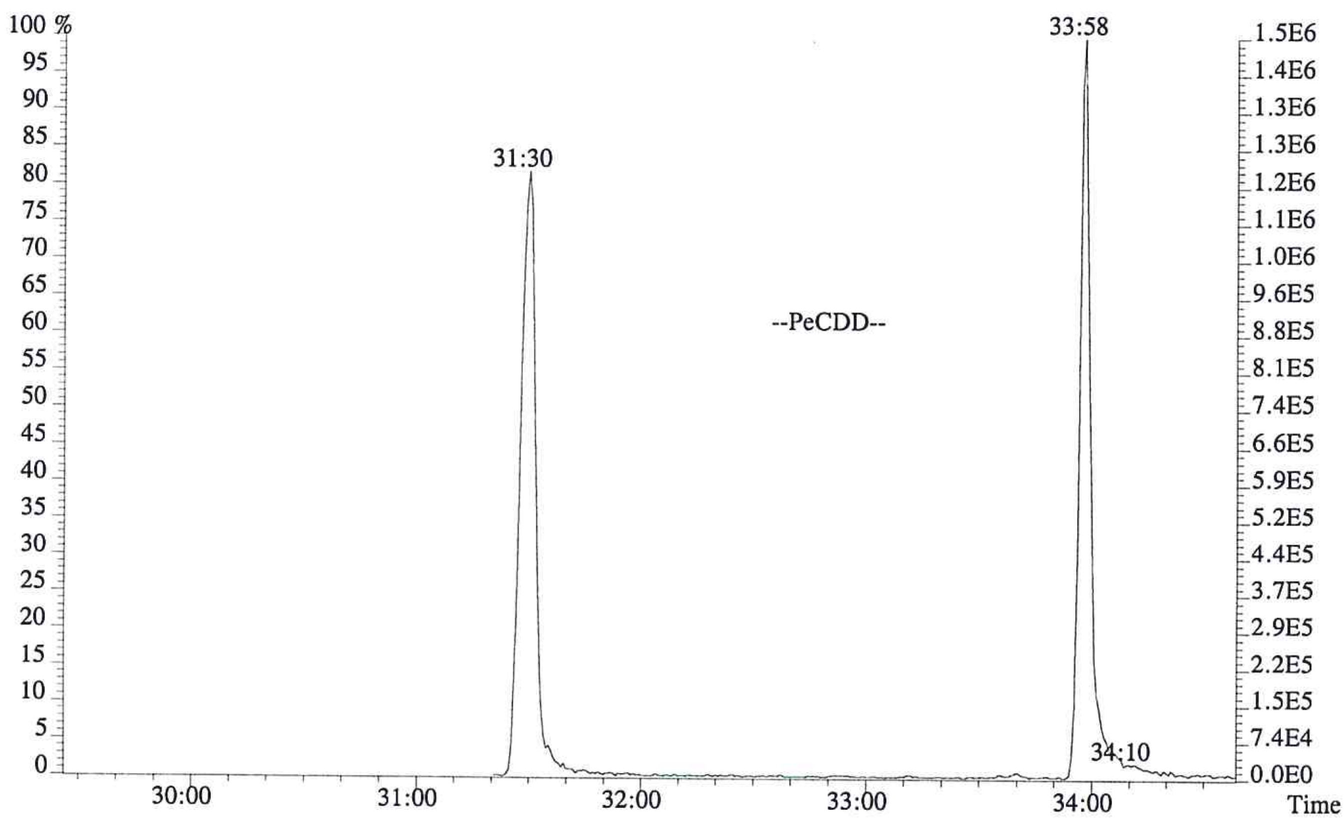
319.8965



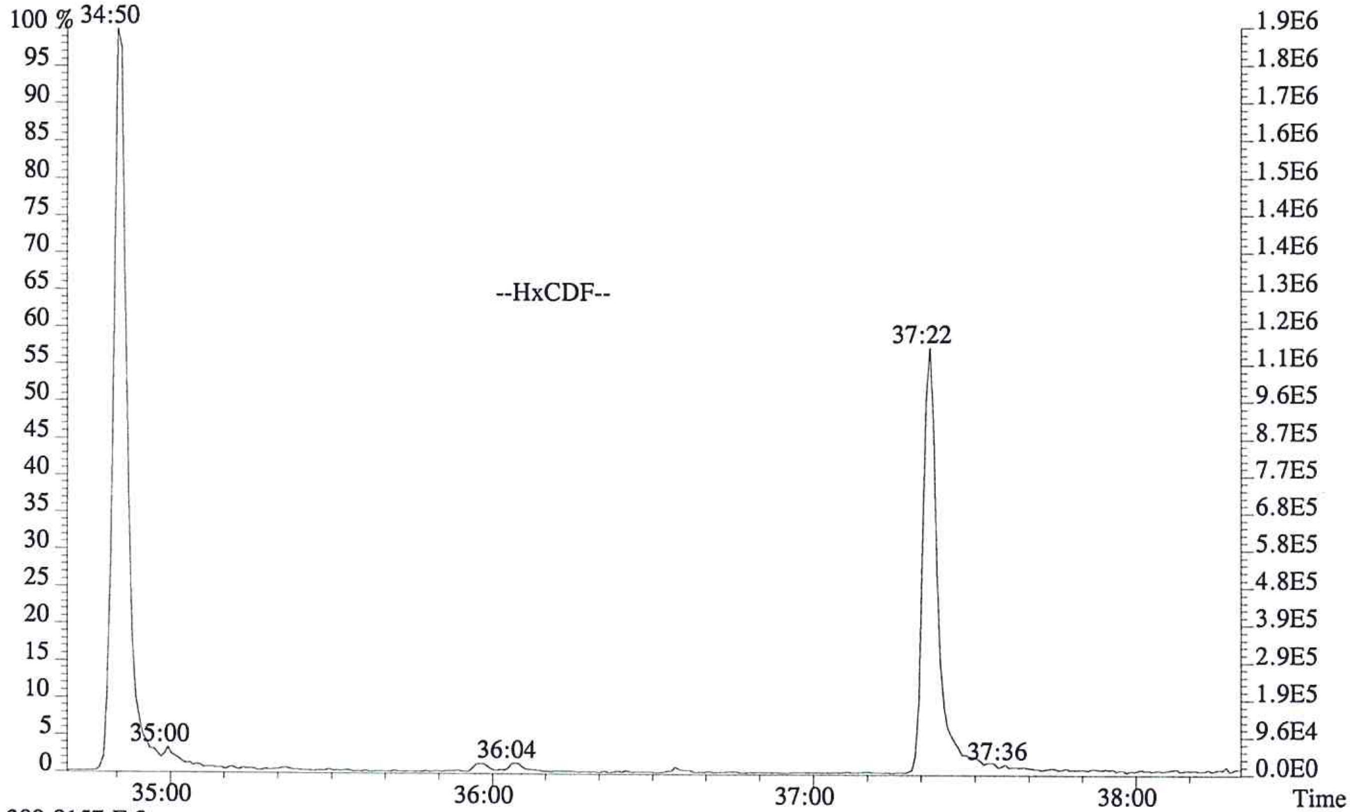
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



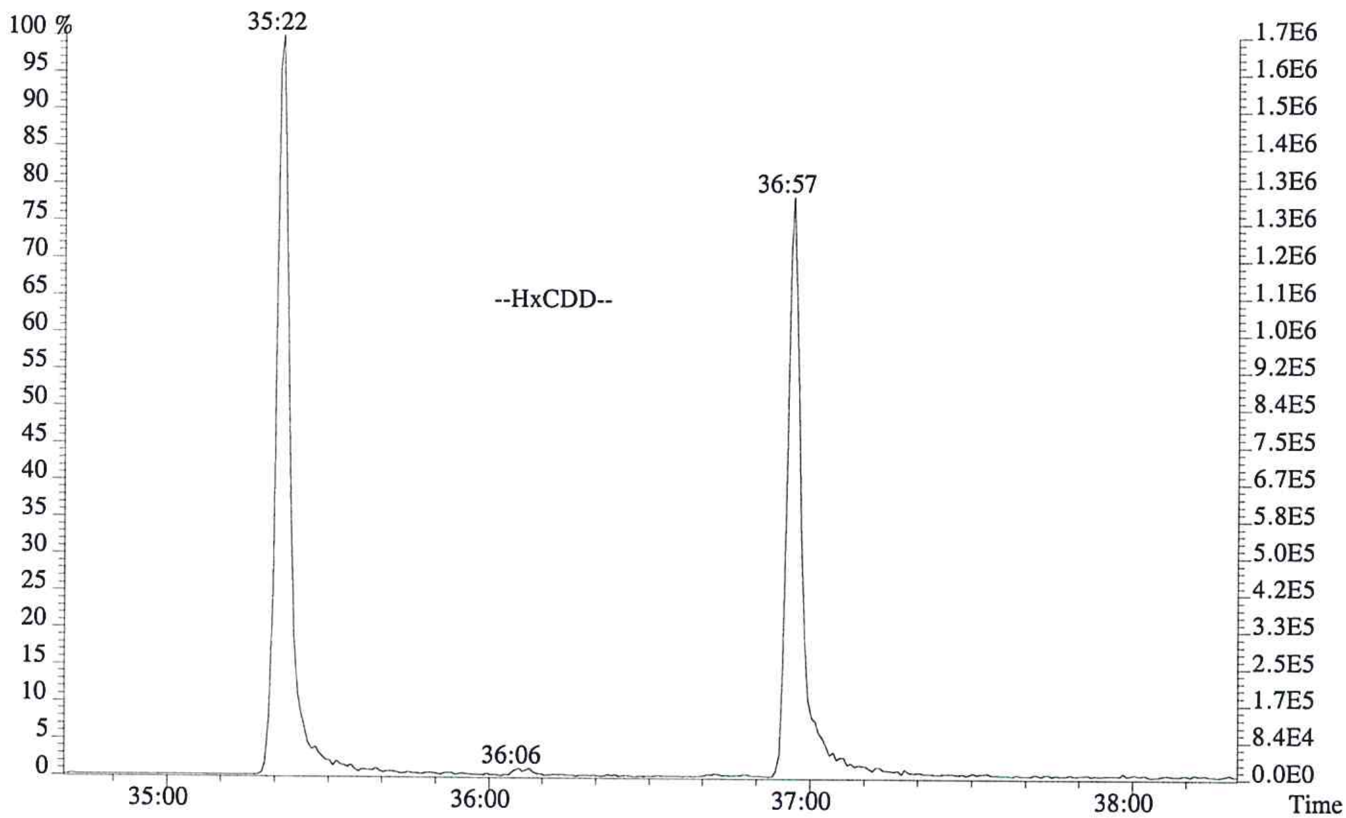
355.8546 F:2



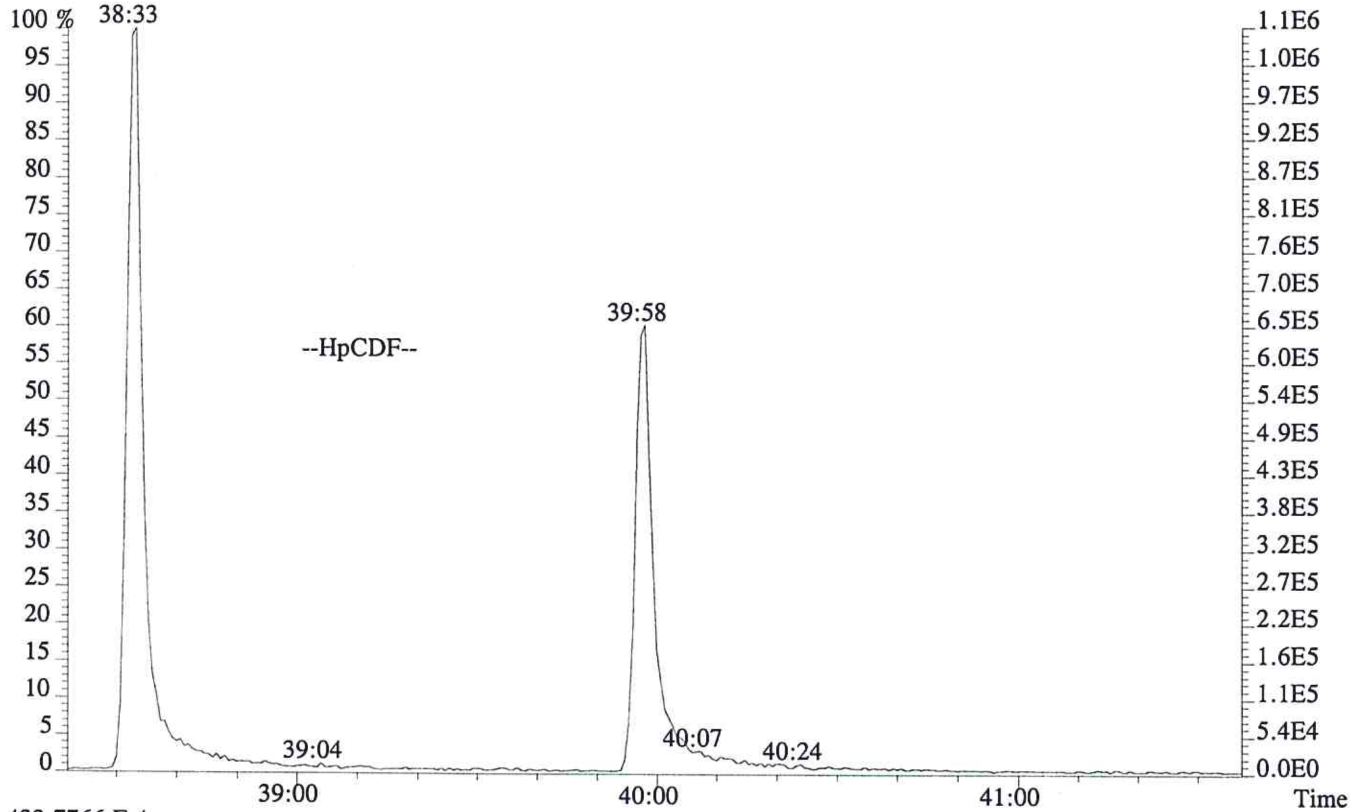
File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



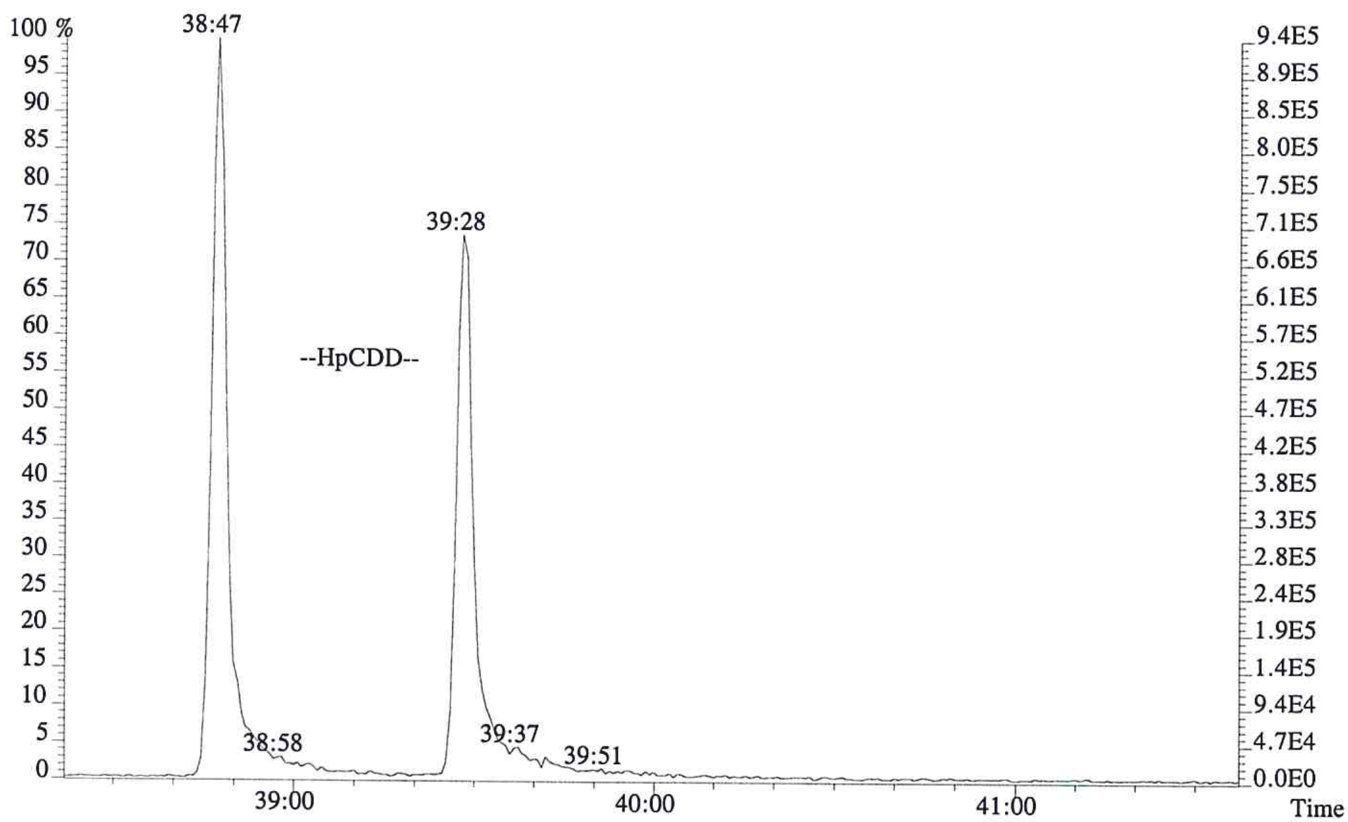
389.8157 F:3



File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



SPME

5DFA5

CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY

HIGH RESOLUTION

Lab Name: ALS Environmental   Contract No.:
Lab Code: ALSTX   Case No.:   TO No.:   SDG No.:
GC Column: DB-5MSUI   ID: 0.25(mm)   Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16   Method: SPME
Init. Calib. Time.: 09:17

Target Analytes	RR/RRF CS1	CS2	CS3	CS4	CS5	RR/RRF	MEAN %RSD	QC LIMITS
2,3,7,8-TCDF	1.16	1.01	1.00	1.02	1.06	1.05	6.57	+/-20%
2,3,7,8-TCDD	0.95	0.91	0.97	0.97	0.98	0.96	2.86	+/-20%
2,3,4,7,8-PeCDF	0.89	0.91	0.93	0.95	0.96	0.93	3.18	+/-20%
13C-1,2,3,4-TCDF	1.31	1.44	1.07	1.32	1.49	1.33	12.37	+/-35%
13C-2,3,7,8-TCDF	1.27	1.24	1.29	1.30	1.31	1.28	1.98	+/-35%
13C-2,3,7,8-TCDD	0.91	0.90	0.94	0.94	0.95	0.93	2.27	+/-35%
13C-1,2,3,7,8-PeCDF	1.36	1.32	1.40	1.39	1.44	1.38	3.44	+/-35%
13C-2,3,4,7,8-PeCDF	1.35	1.32	1.38	1.37	1.43	1.37	2.94	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.87	0.84	0.89	0.87	0.89	0.87	2.35	+/-35%
37Cl-2,3,7,8-TCDD	0.88	0.92	0.96	0.96	1.01	0.94	5.24	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

SPME
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16 Method SPME
Init. Calib. Time.: 09:17

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO C1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.66	0.82	0.77	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.68	0.79	0.78	0.79	0.78		0.65-0.89
2,3,4,7,8-PeCDF	340/342	1.56	1.53	1.55	1.56	1.55		1.32-1.78
13C-1,2,3,4-TCDF	316/318	0.80	0.80	0.80	0.79	0.80		0.65-0.89
13C-2,3,7,8-TCDF	316/318	0.82	0.80	0.80	0.80	0.80		0.65-0.89
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.78	0.78	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.60	1.60	1.60	1.61		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.62	1.60	1.60	1.61	1.58		1.32-1.78
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.52	0.51	0.52	0.51		0.43-0.59
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.29	1.24	1.24	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

FORM VI-HR CDD-2

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173636

Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	1.659e+02	2.502e+02	0.66	yes	yes	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.262e+03	8.112e+02	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.471e+02	2.158e+02	0.68	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	3.924e+04	4.815e+04	0.82	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.787e+04	3.555e+04	1.63	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	5.732e+04	3.540e+04	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.788e+04	3.501e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.003e+04	4.991e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	2.727e+04	3.509e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.030e+04	3.842e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.373e+04	2.692e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	3.012e+02				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173636

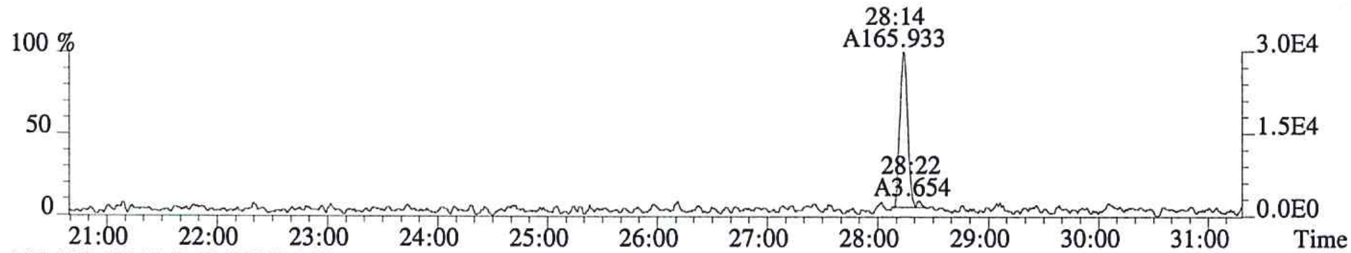
Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.89e+04	1.68e+03	1.7e+01	4.53e+04	4.50e+03	1.0e+01
3	2,3,4,7,8-PeCDF	2.34e+05	1.24e+03	1.9e+02	1.53e+05	1.94e+03	7.9e+01
11	2,3,7,8-TCDD	2.46e+04	1.07e+03	2.3e+01	3.66e+04	1.37e+03	2.7e+01
18	13C-2,3,7,8-TCDF	6.69e+06	6.48e+03	1.0e+03	8.21e+06	3.58e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	9.80e+06	1.39e+03	7.1e+03	6.08e+06	1.25e+04	4.8e+02
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.39e+03	7.6e+03	6.48e+06	1.25e+04	5.2e+02
24	13C-1,2,3,7,8,9-HxCDF	3.21e+06	1.12e+03	2.9e+03	6.25e+06	1.78e+03	3.5e+03
26	13C-1,2,3,4-TCDF	6.44e+06	6.48e+03	9.9e+02	8.07e+06	3.58e+03	2.3e+03
27	13C-2,3,7,8-TCDD	4.87e+06	9.76e+03	5.0e+02	6.17e+06	4.64e+03	1.3e+03
33	13C-1,2,3,4-TCDD	5.55e+06	9.76e+03	5.7e+02	7.02e+06	4.64e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	2.00e+03	2.9e+03	4.65e+06	1.55e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	5.73e+04	3.00e+03	1.9e+01			

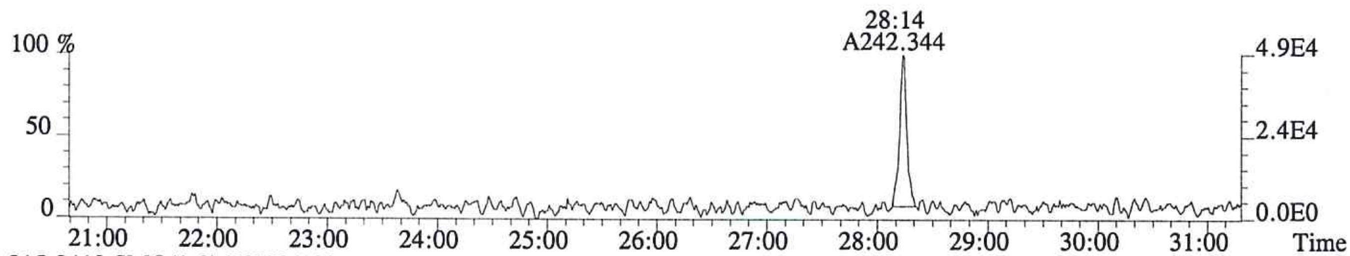
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

www.alsglobal.com

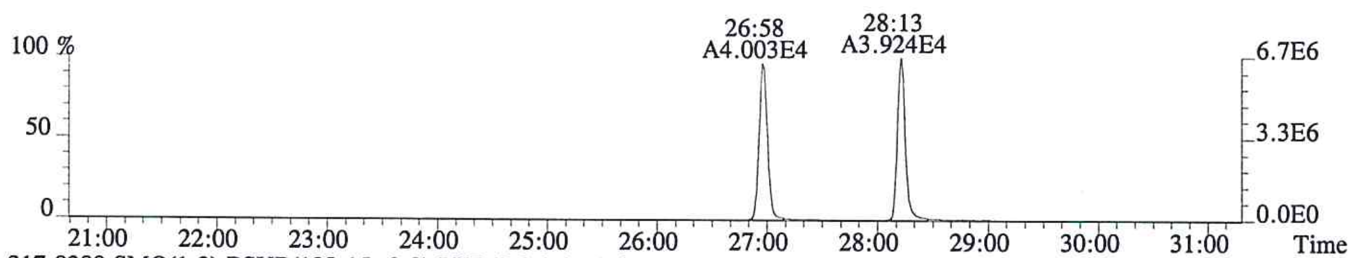
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



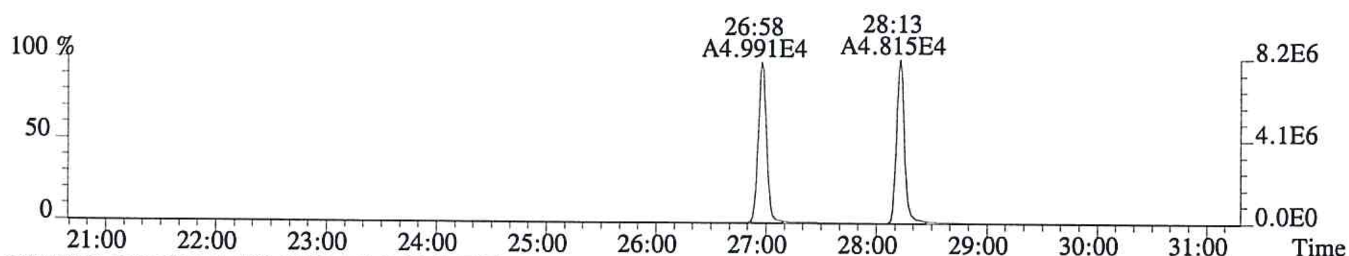
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



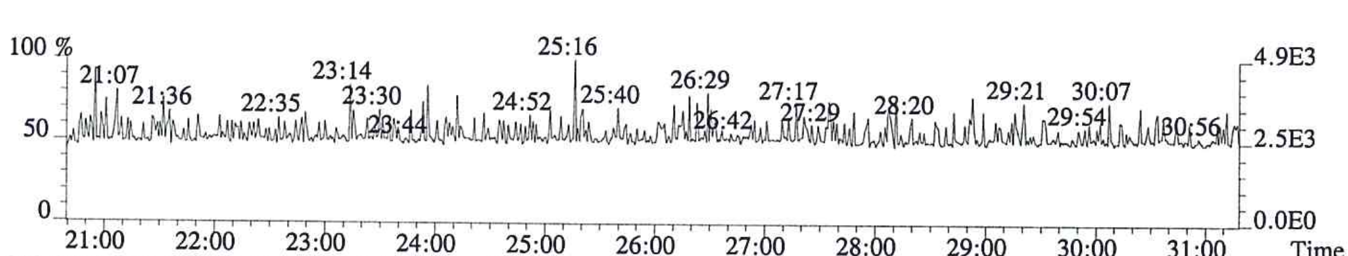
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6484.0,1.00%,F,T)



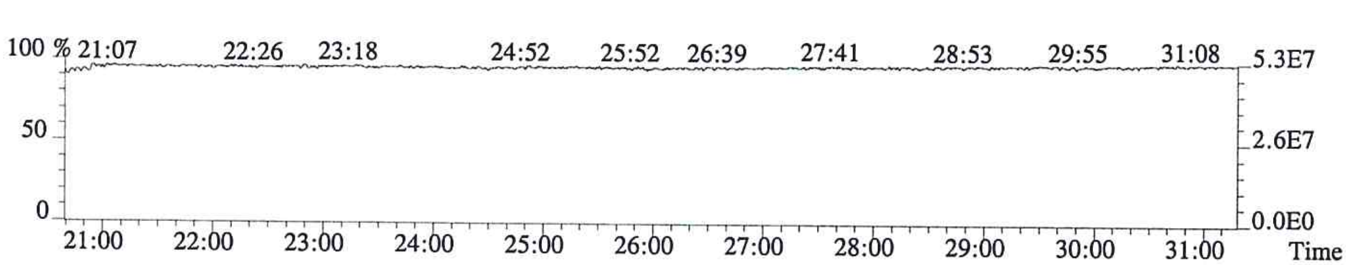
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



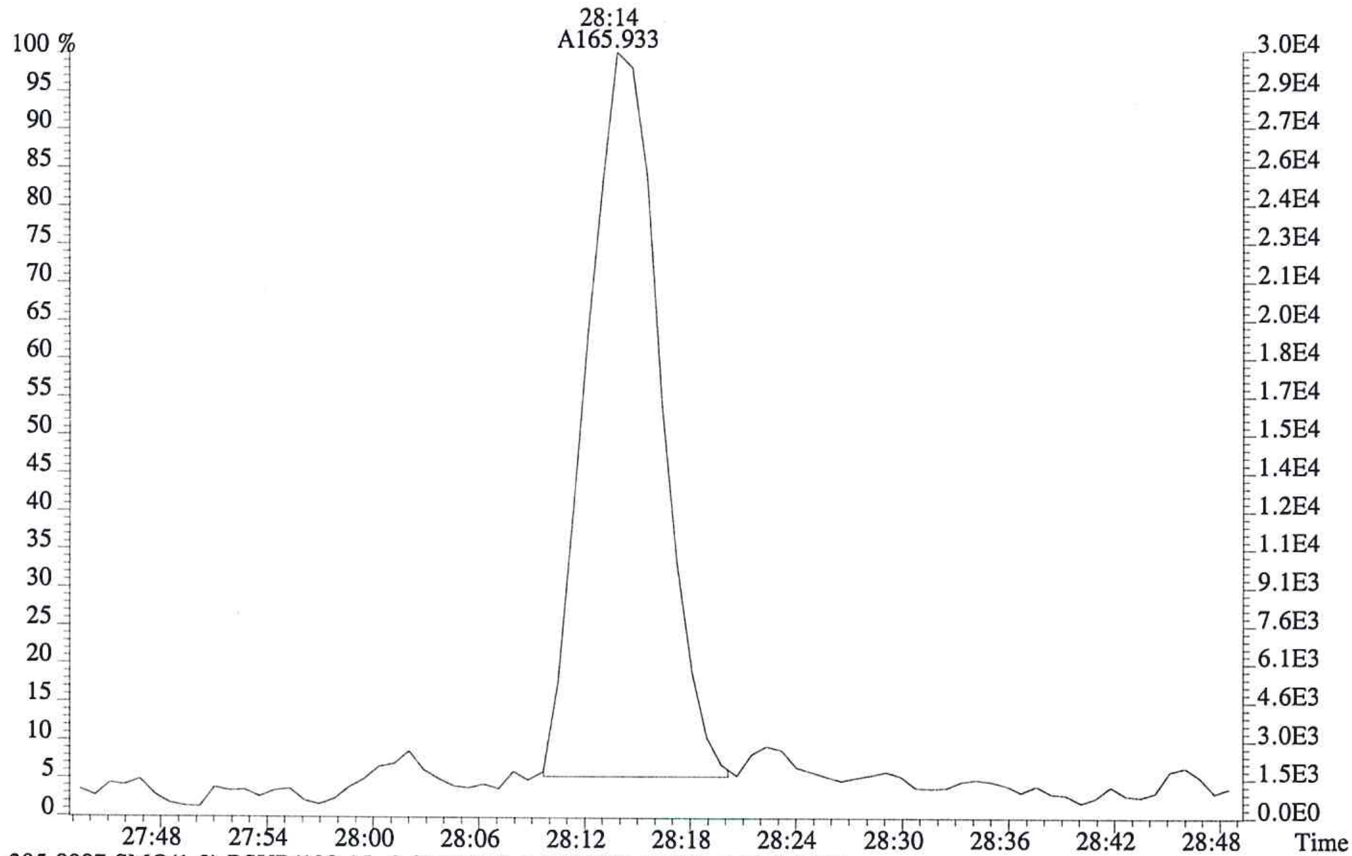
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



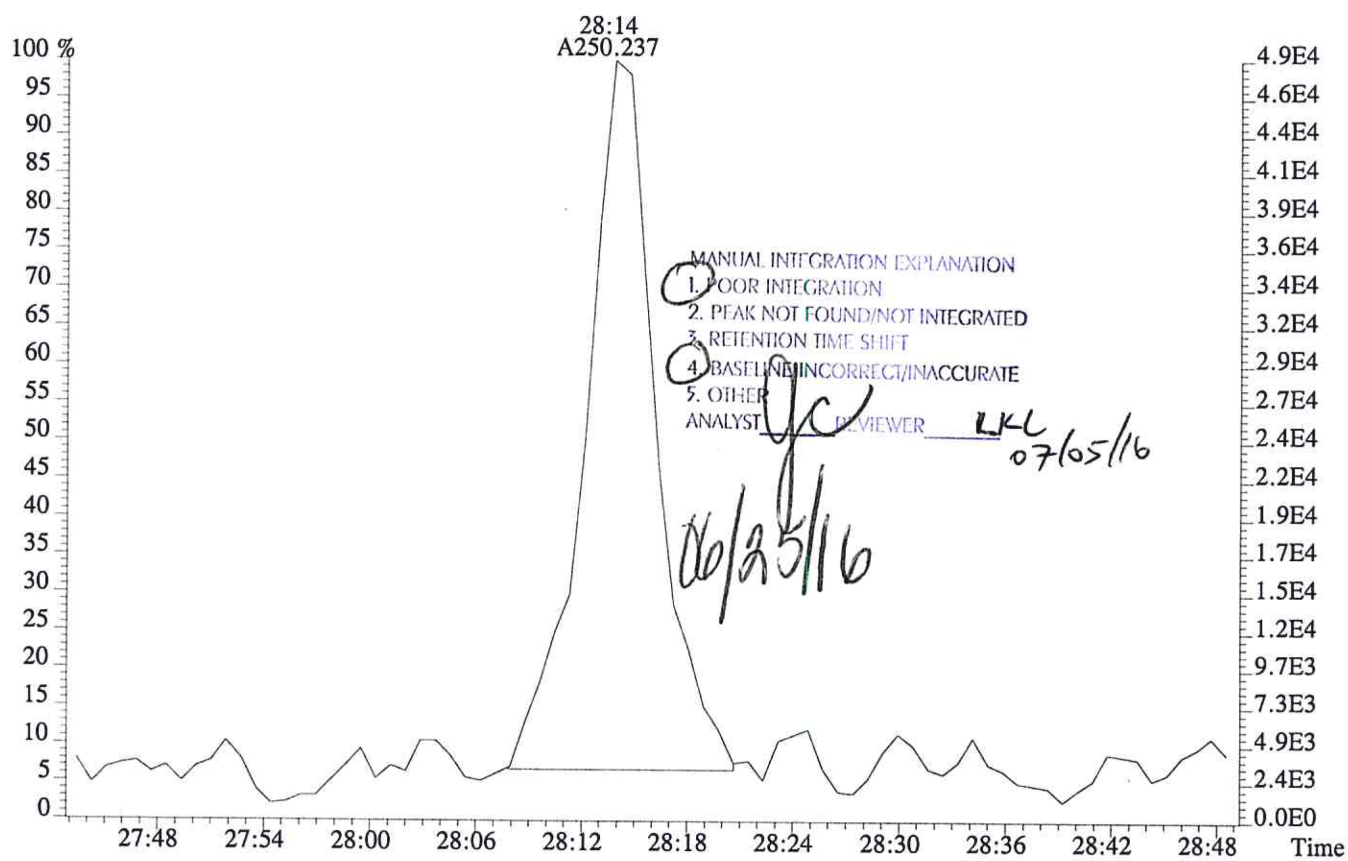
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



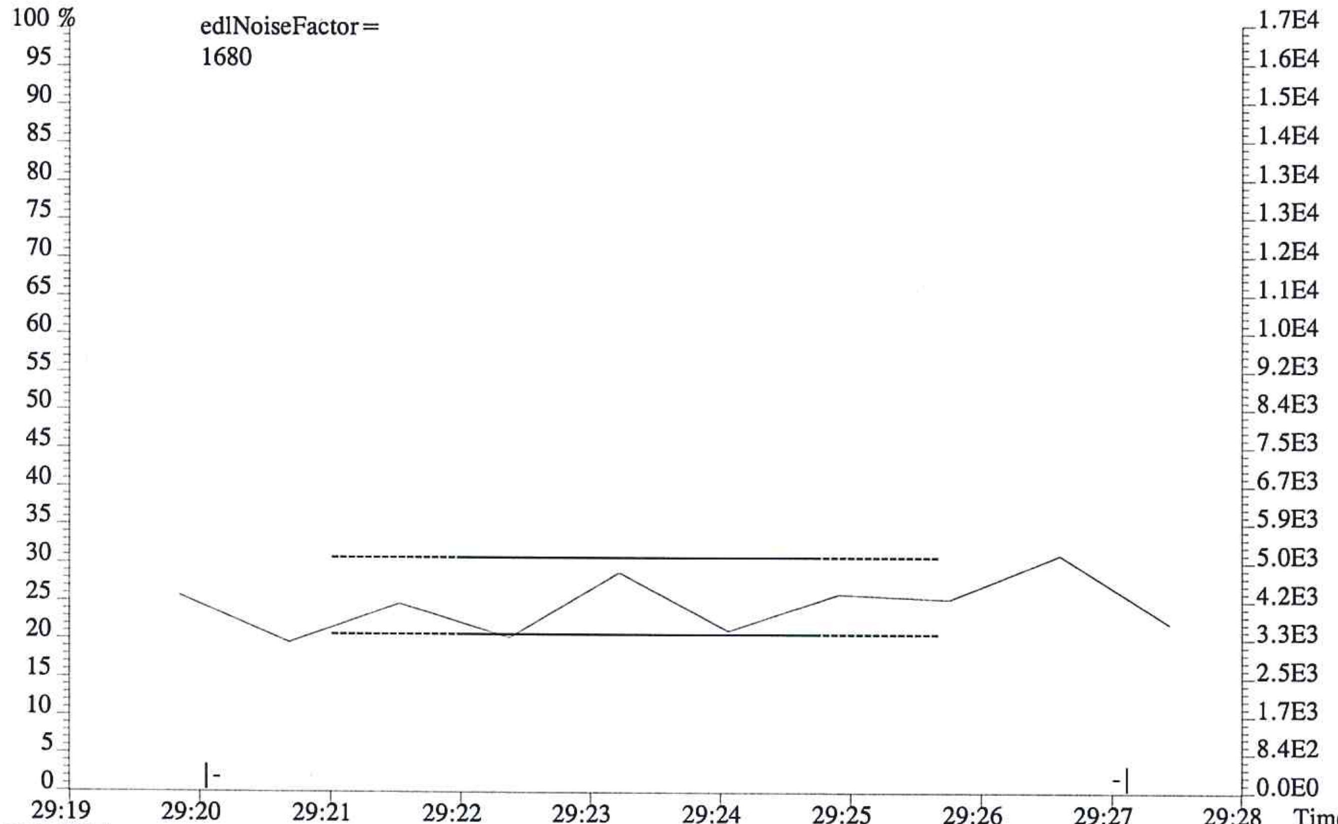
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



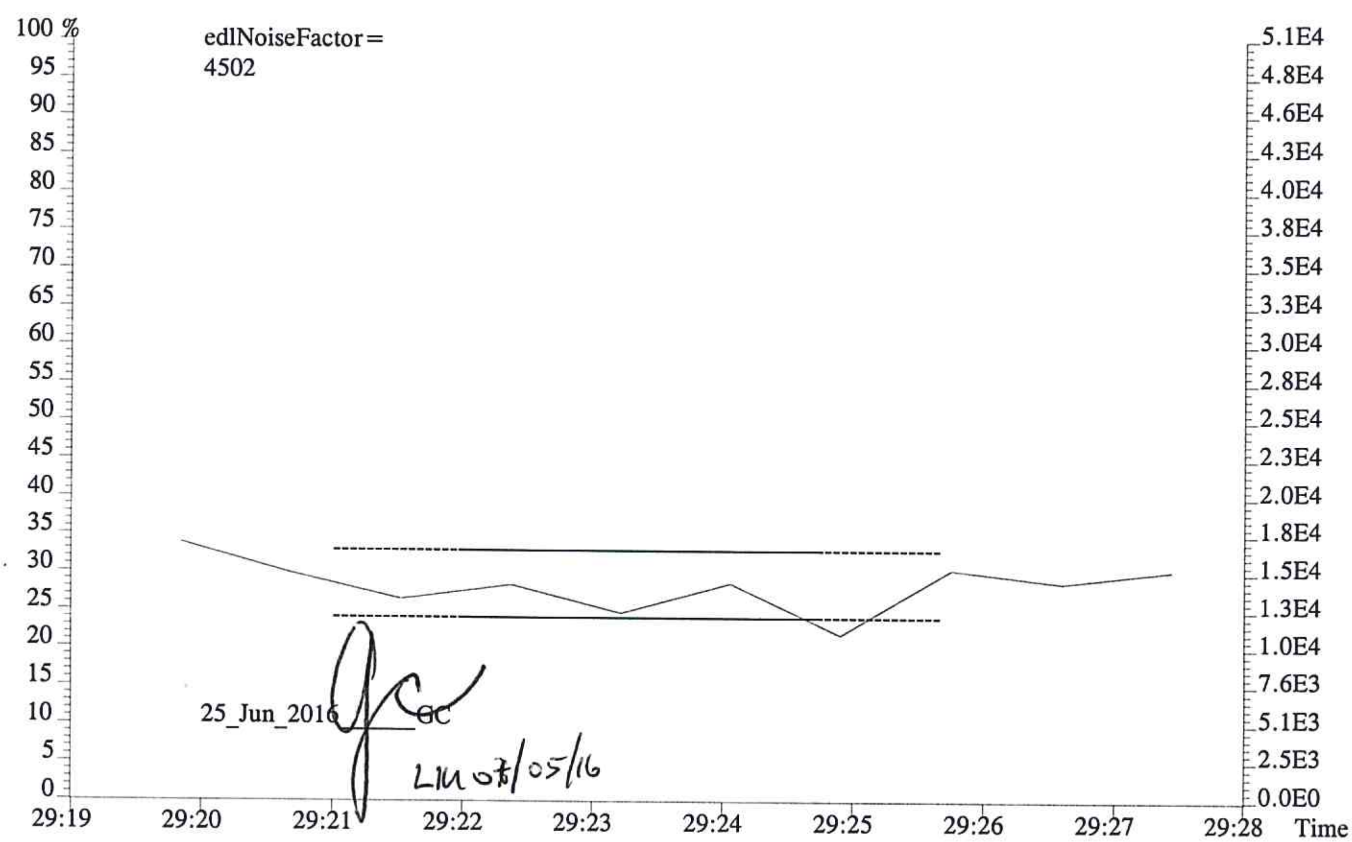
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



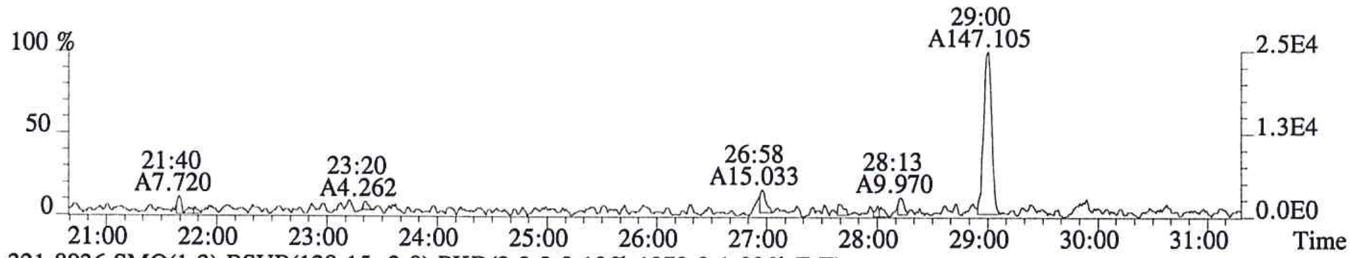
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016



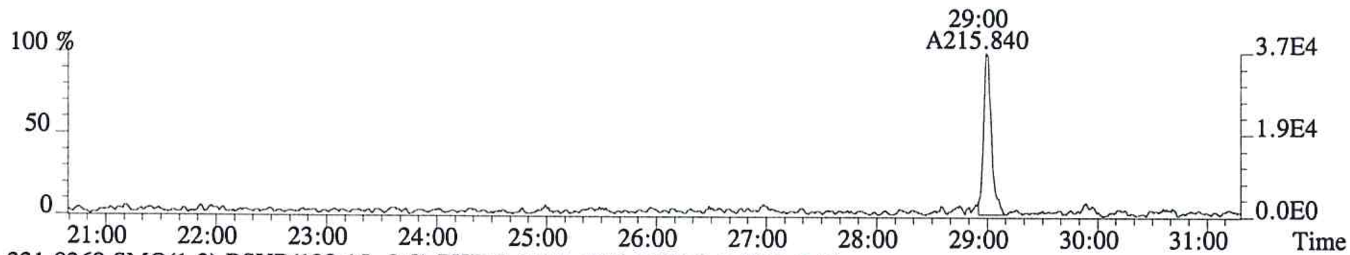
305.8987



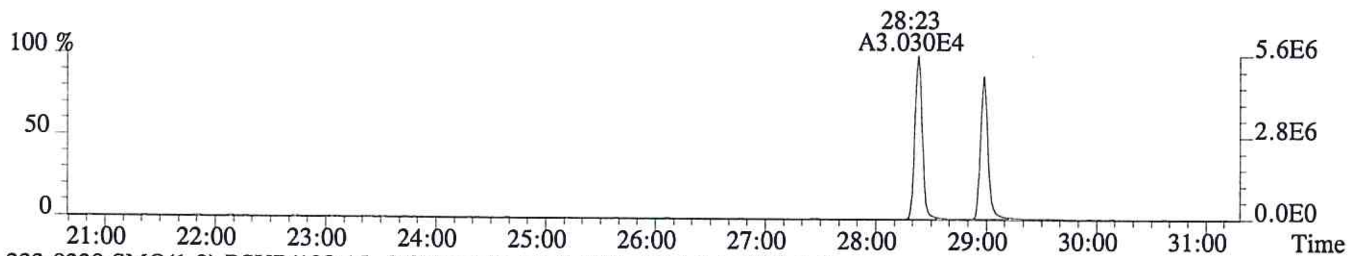
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



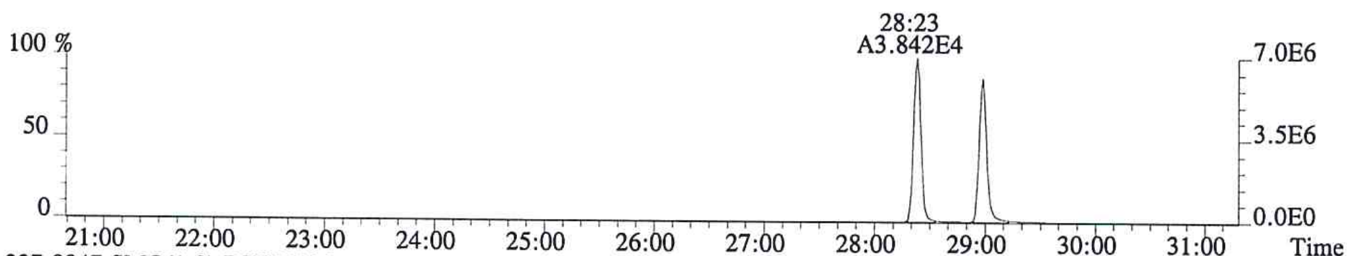
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



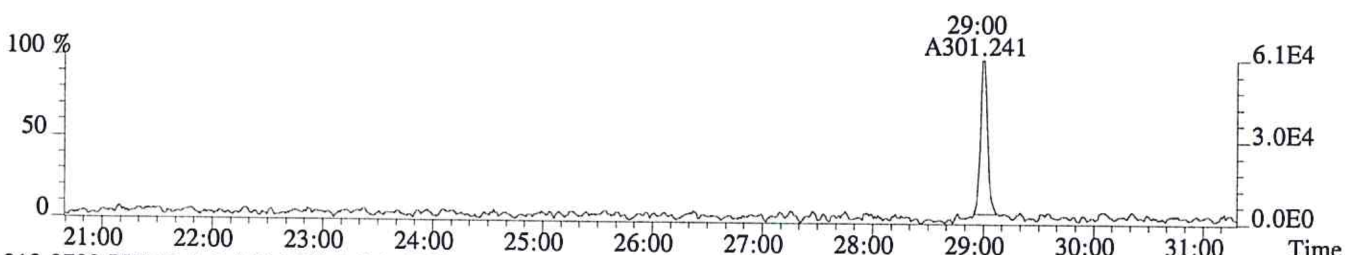
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9756.0,1.00%,F,T)



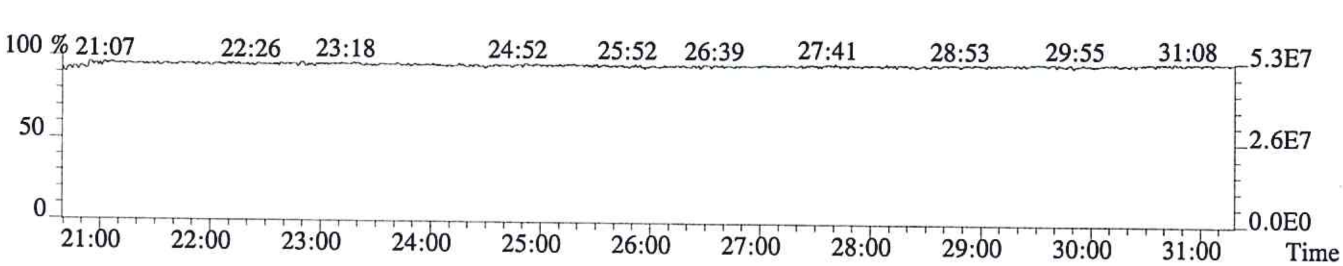
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4644.0,1.00%,F,T)



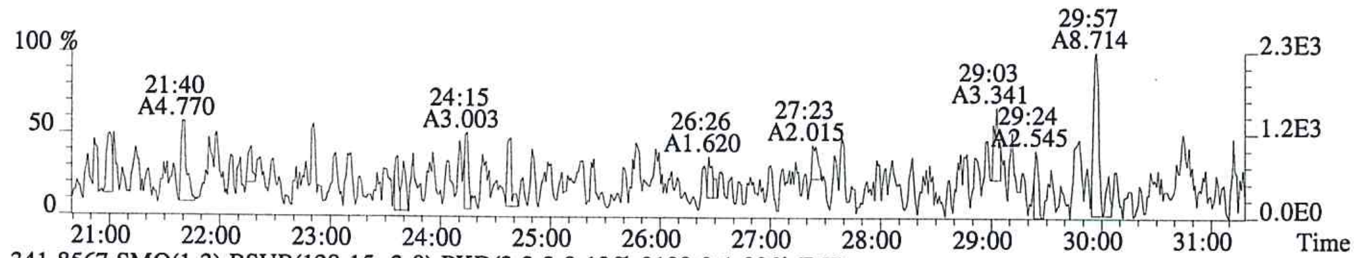
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3000.0,1.00%,F,T)



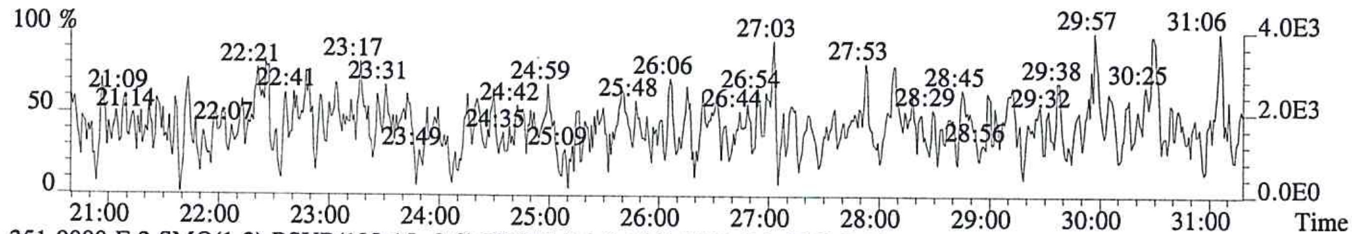
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



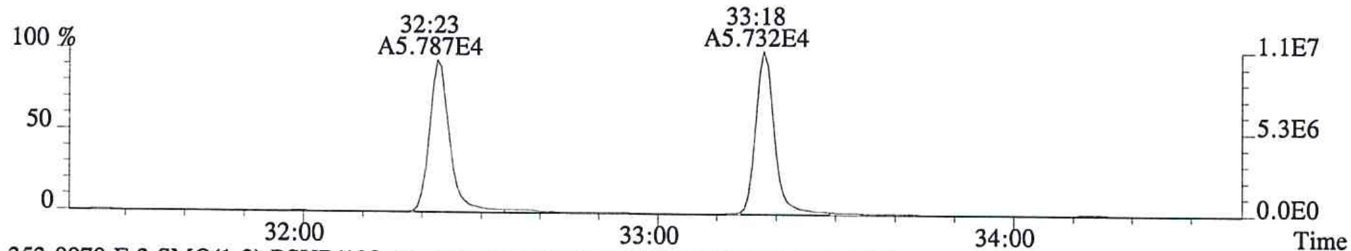
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



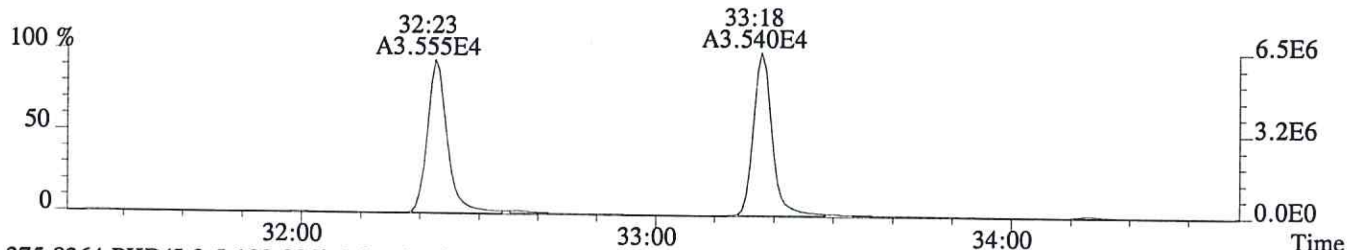
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



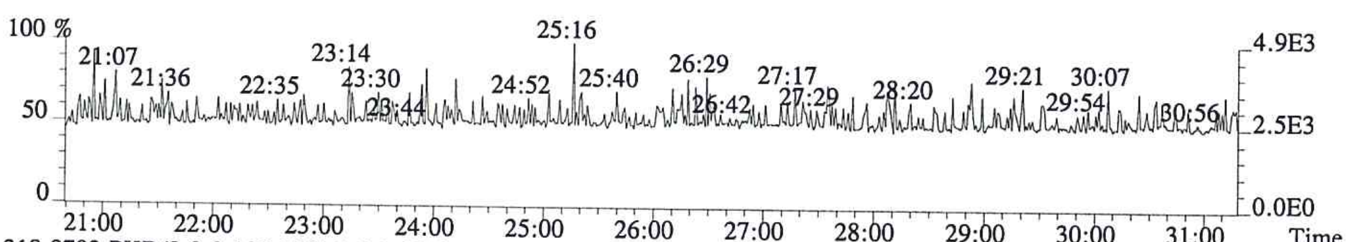
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



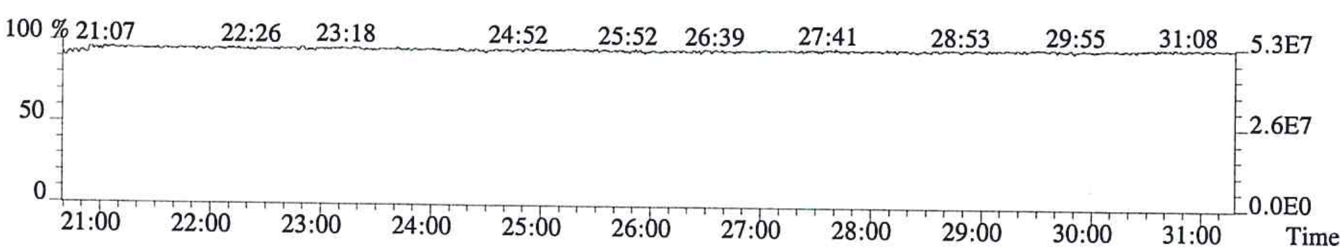
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

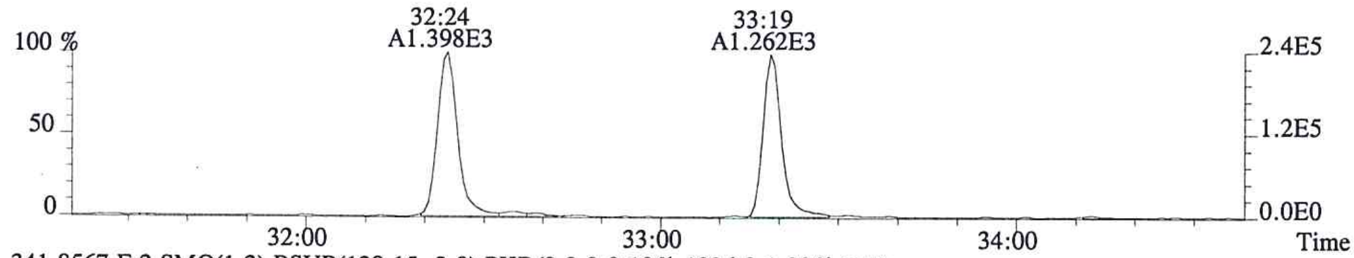


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

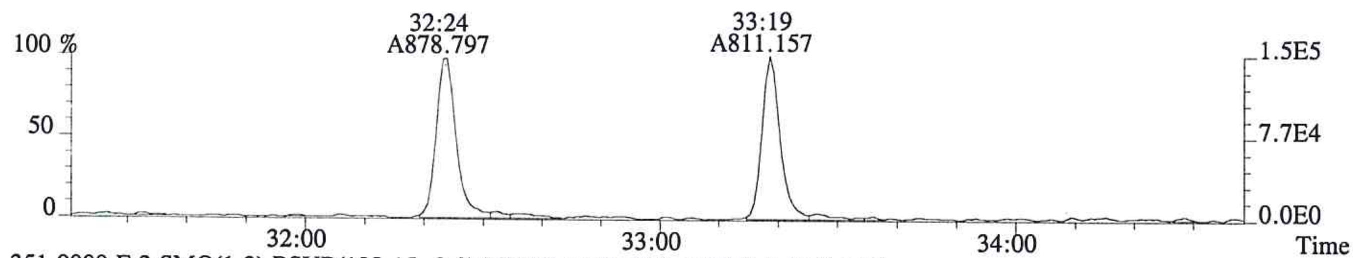


File:P603982 #1-298 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

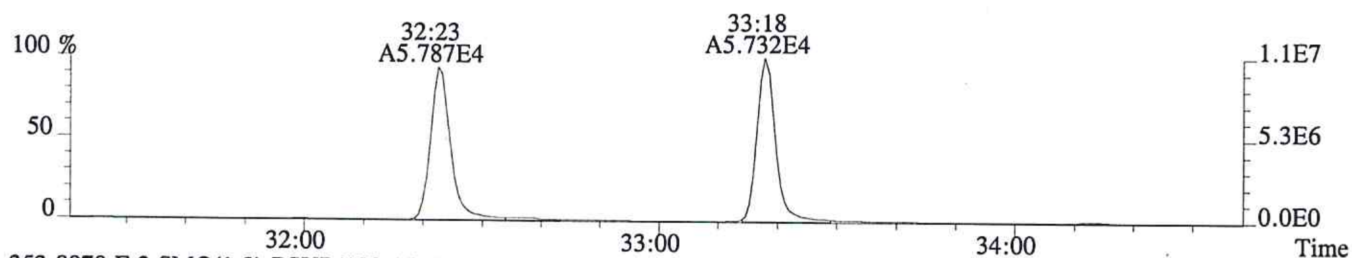
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



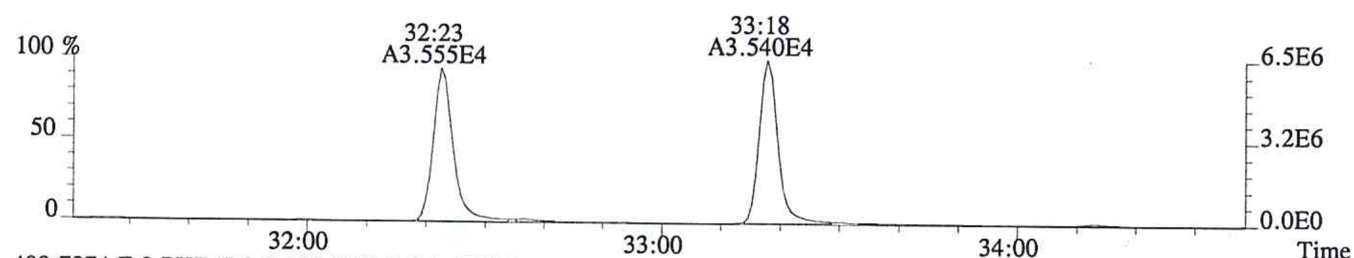
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



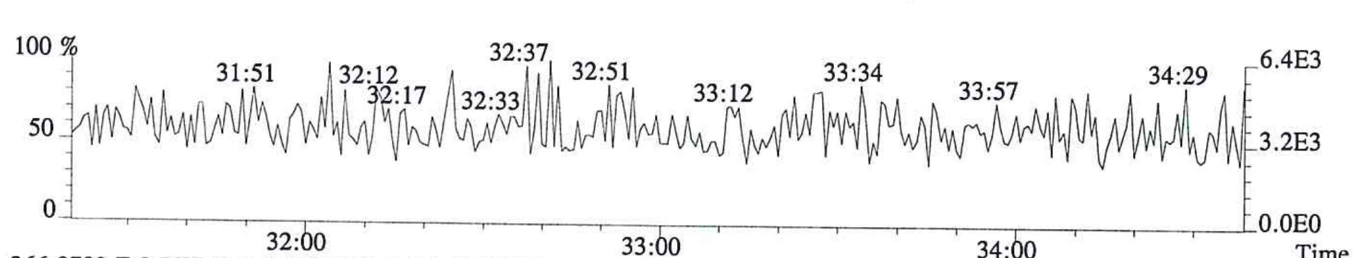
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



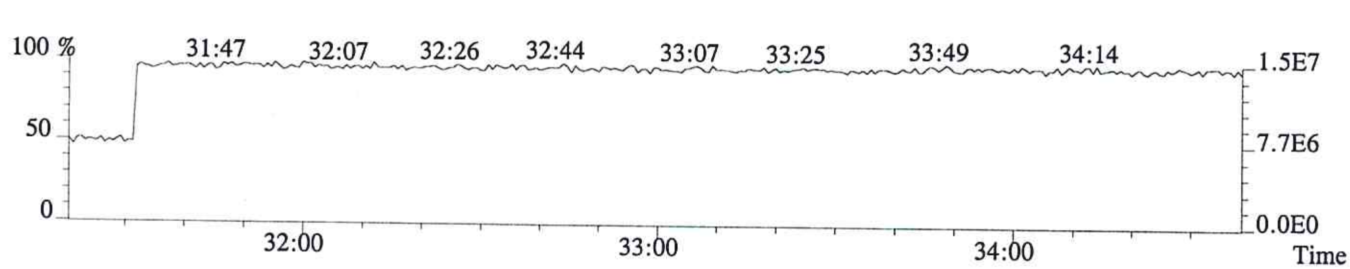
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

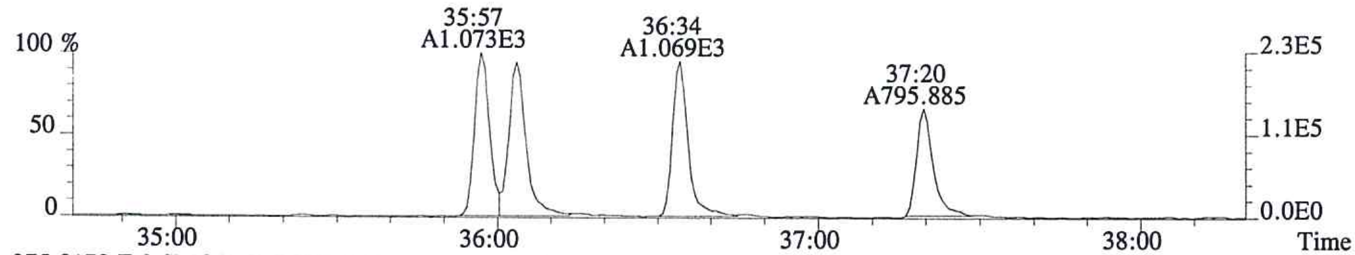


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

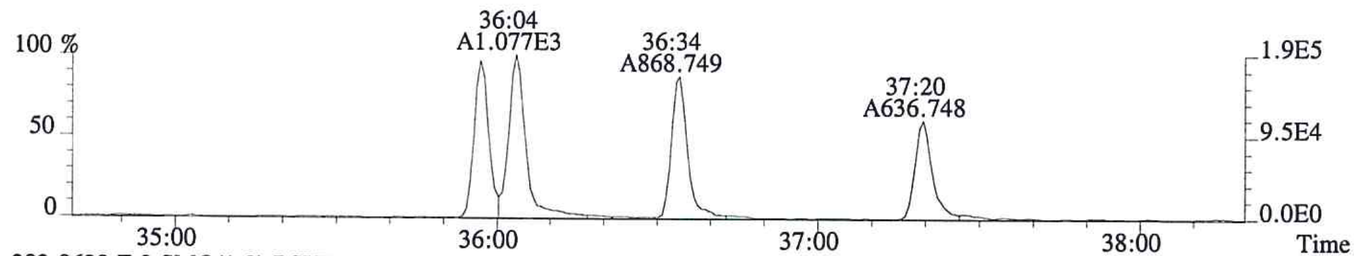


File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

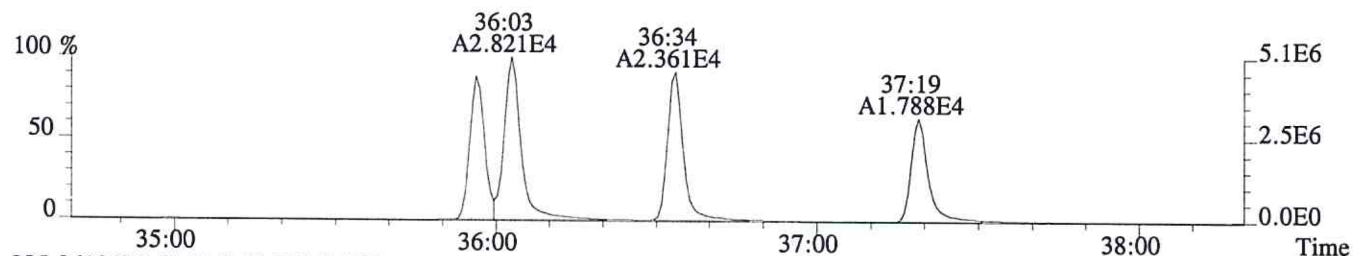
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



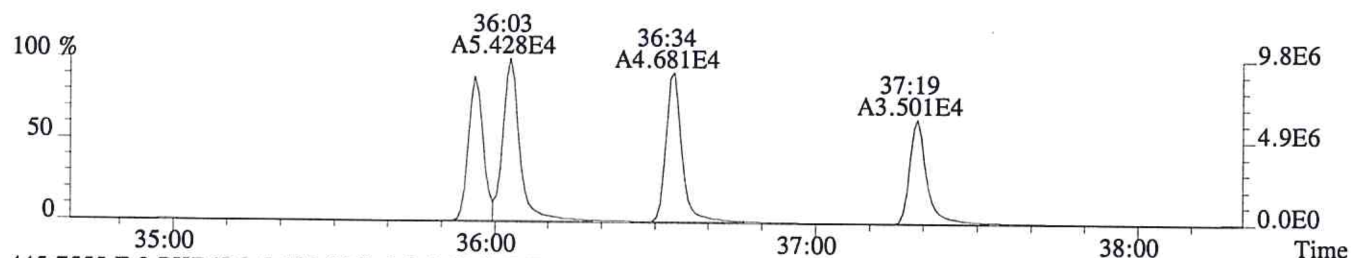
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



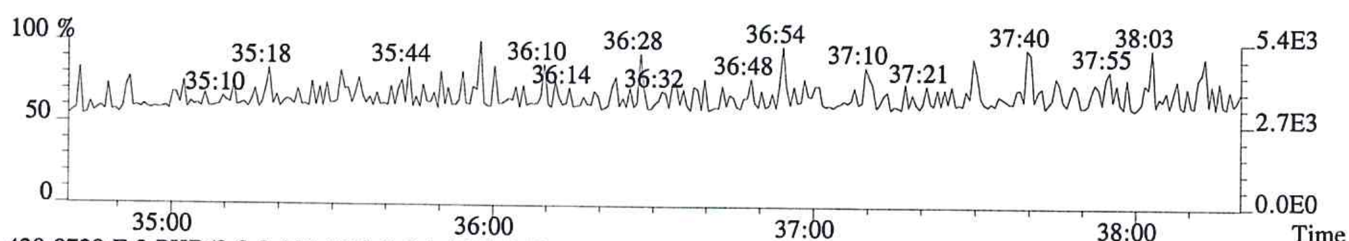
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



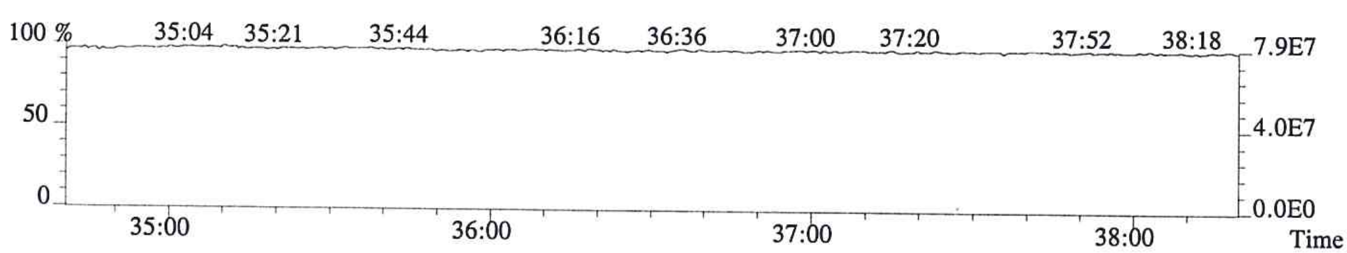
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



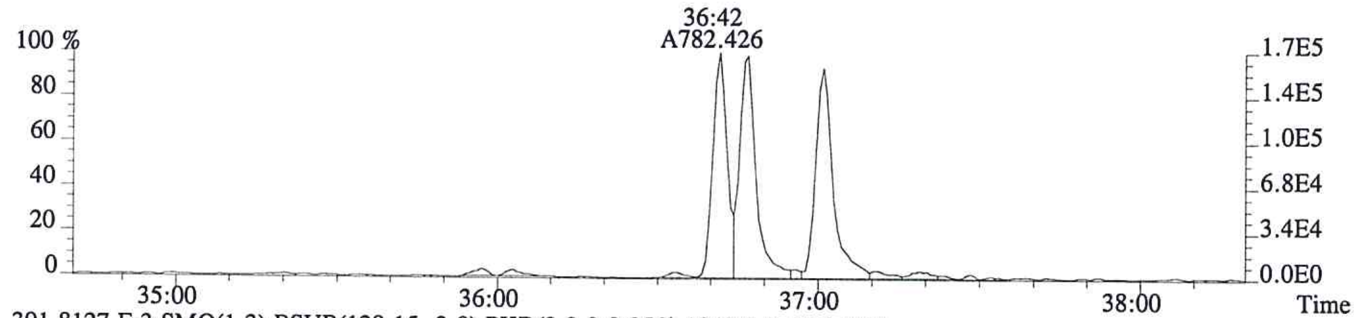
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



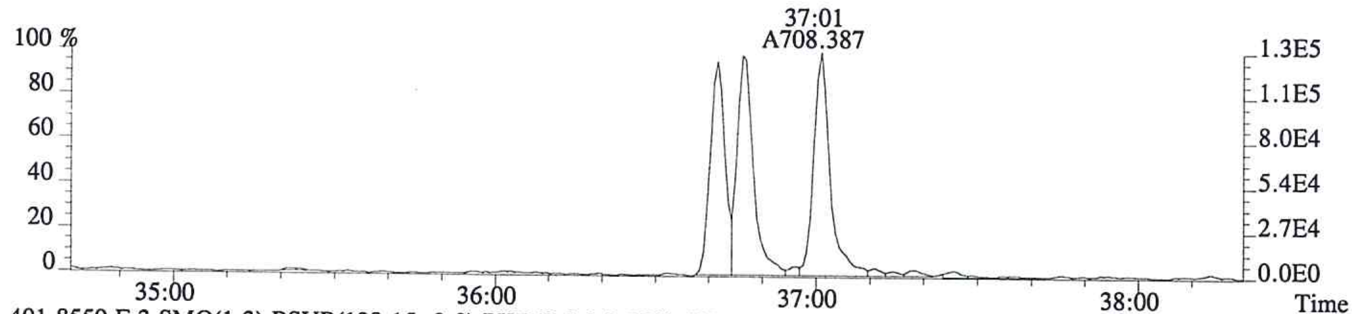
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



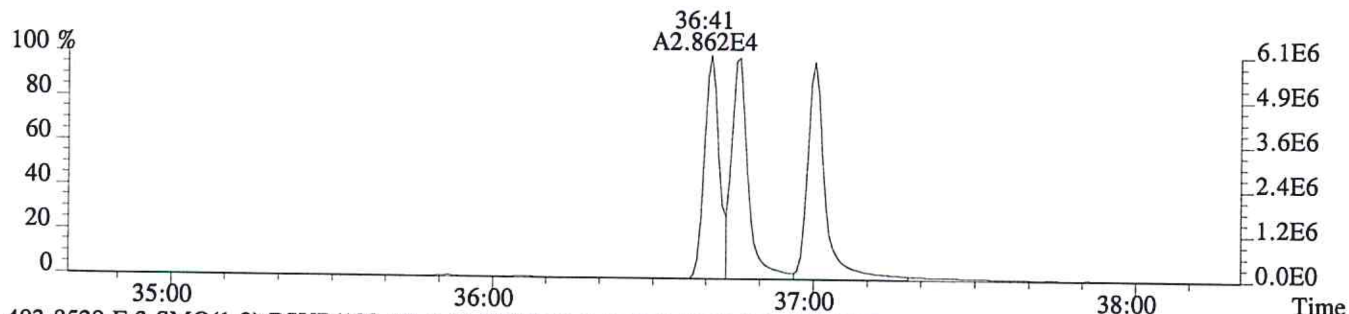
File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



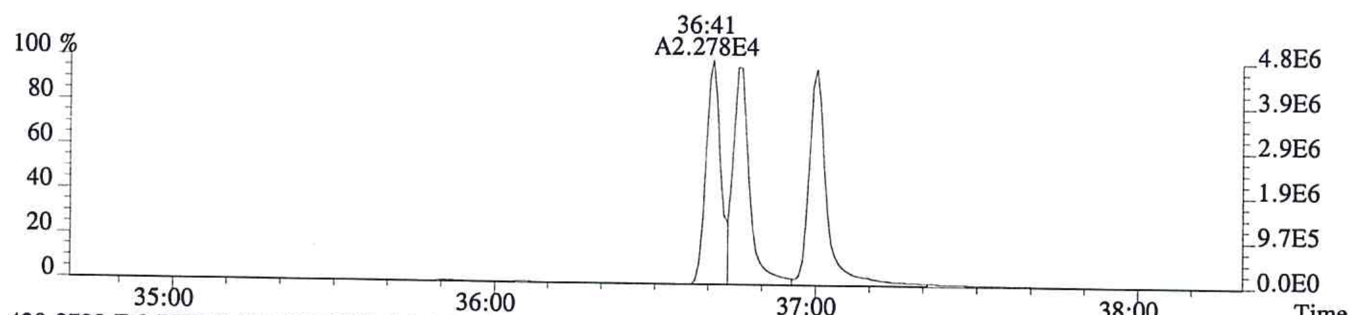
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



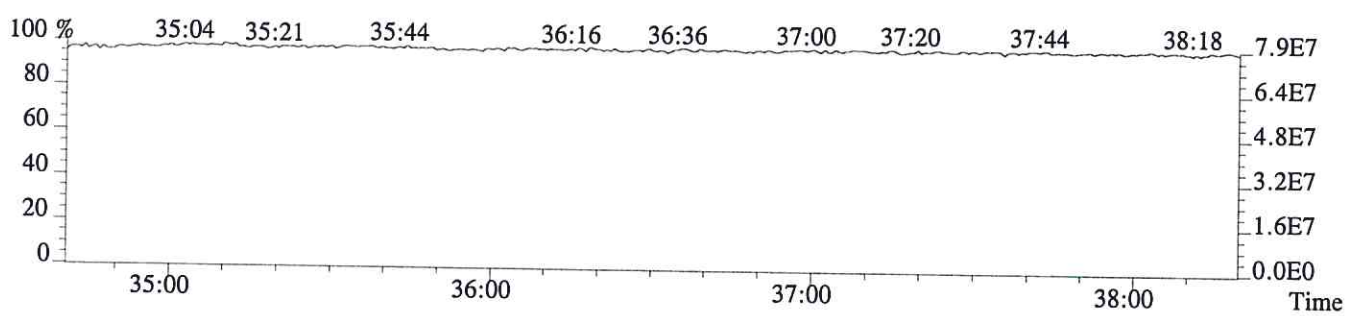
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	6.799e+02	8.314e+02	0.82	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.821e+03	3.158e+03	1.53	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:01	5.343e+02	6.795e+02	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	3.694e+04	4.596e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.402e+04	3.368e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	5.416e+04	3.394e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.659e+04	3.192e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.274e+04	5.355e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	2.625e+04	3.404e+04	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	2.934e+04	3.730e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:01	3.239e+04	2.513e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.225e+03				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.17e+05	1.48e+03	7.9e+01	1.52e+05	4.36e+03	3.5e+01
3	2,3,4,7,8-PeCDF	8.88e+05	2.05e+03	4.3e+02	5.85e+05	3.36e+03	1.7e+02
11	2,3,7,8-TCDD	9.48e+04	1.46e+03	6.5e+01	1.18e+05	1.44e+03	8.2e+01
18	13C-2,3,7,8-TCDF	6.40e+06	6.69e+03	9.6e+02	7.94e+06	4.12e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.08e+06	1.90e+04	4.8e+02	5.70e+06	9.55e+03	6.0e+02
20	13C-2,3,4,7,8-PeCDF	9.94e+06	1.90e+04	5.2e+02	6.21e+06	9.55e+03	6.5e+02
24	13C-1,2,3,7,8,9-HxCDF	2.98e+06	1.04e+03	2.9e+03	5.77e+06	2.19e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.93e+06	6.69e+03	1.0e+03	8.59e+06	4.12e+03	2.1e+03
27	13C-2,3,7,8-TCDD	4.74e+06	9.28e+03	5.1e+02	6.17e+06	3.62e+03	1.7e+03
33	13C-1,2,3,4-TCDD	5.42e+06	9.28e+03	5.8e+02	6.85e+06	3.62e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.54e+06	2.31e+03	2.4e+03	4.38e+06	1.60e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.19e+05	2.42e+03	9.0e+01			

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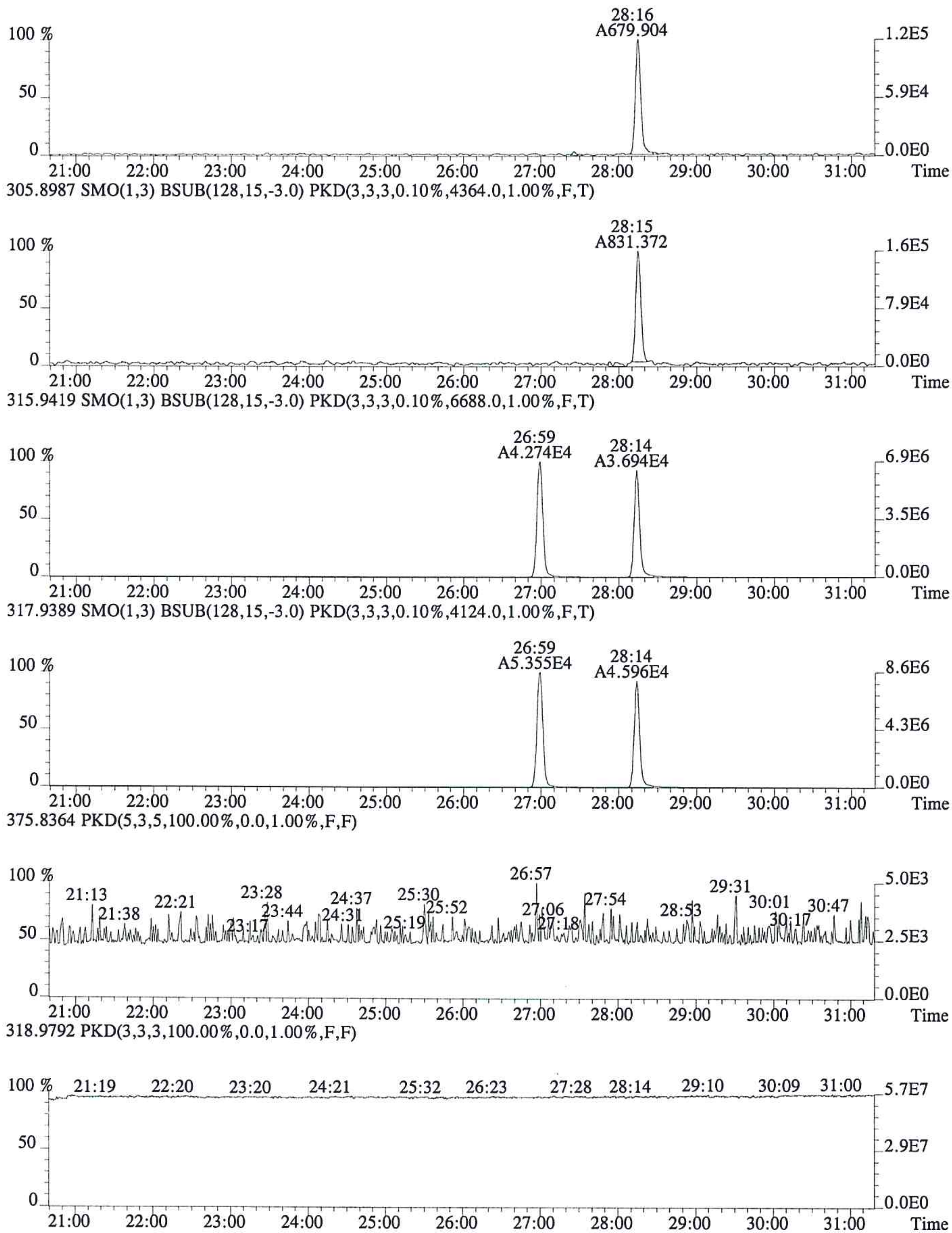
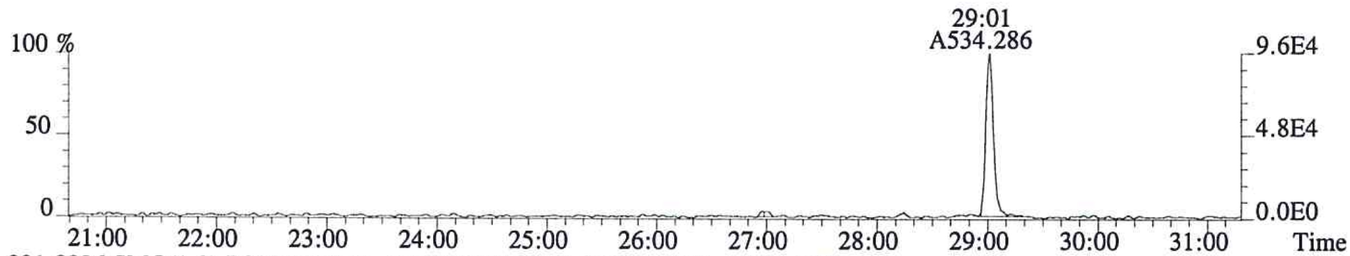
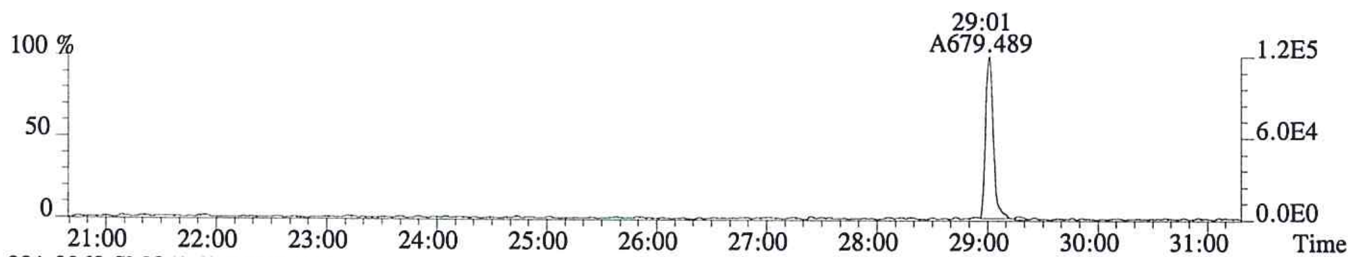
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



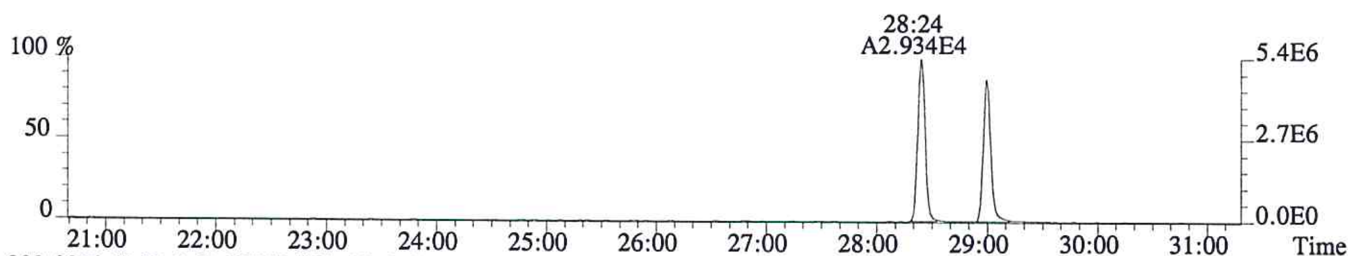
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



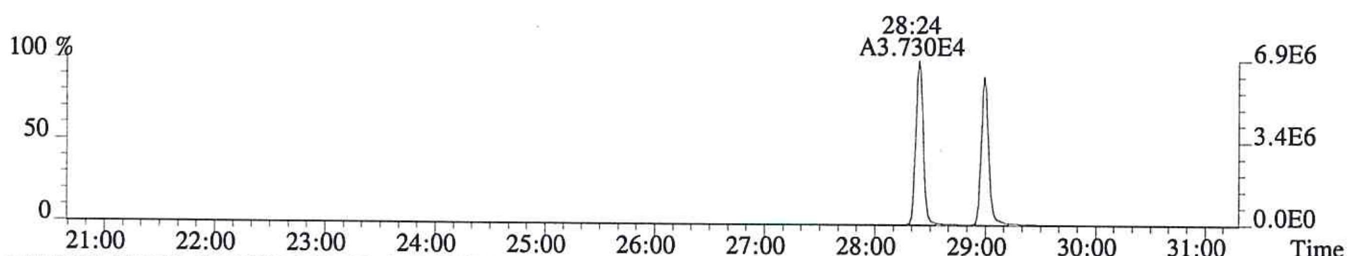
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



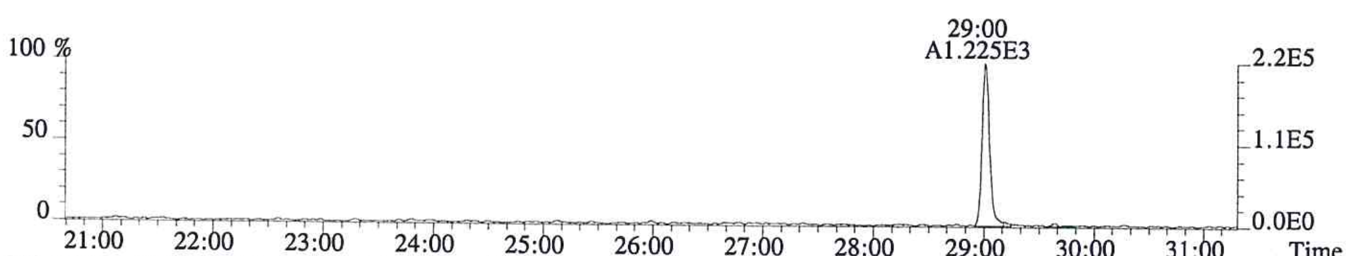
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9284.0,1.00%,F,T)



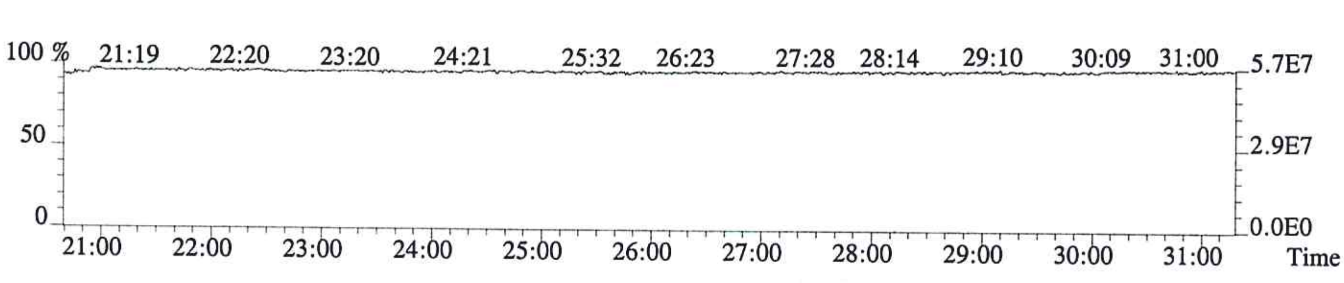
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3624.0,1.00%,F,T)



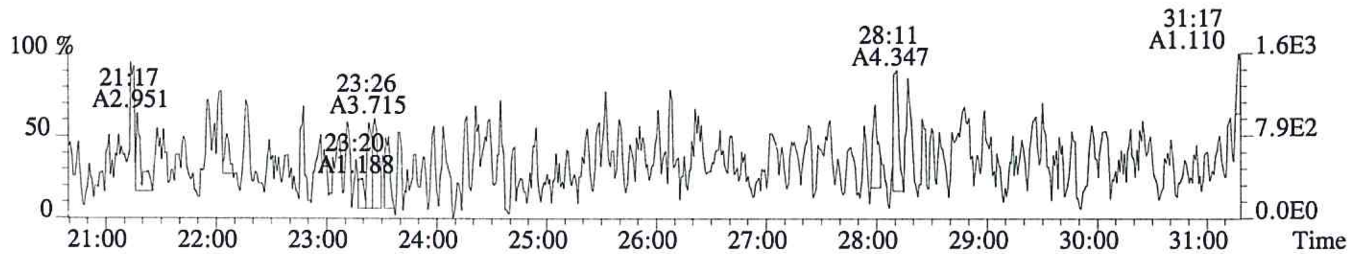
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



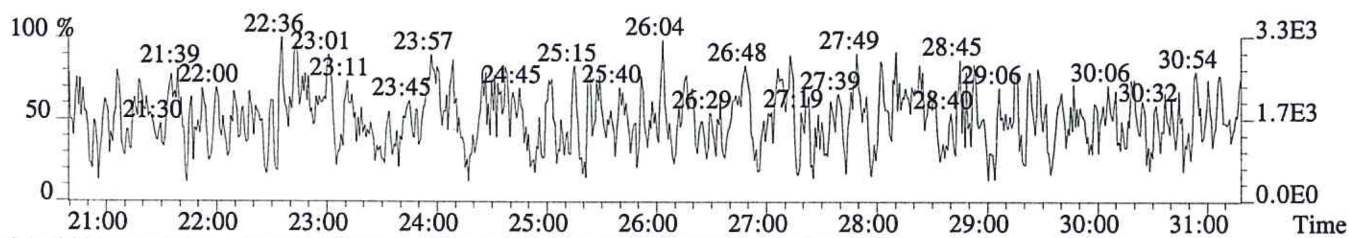
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



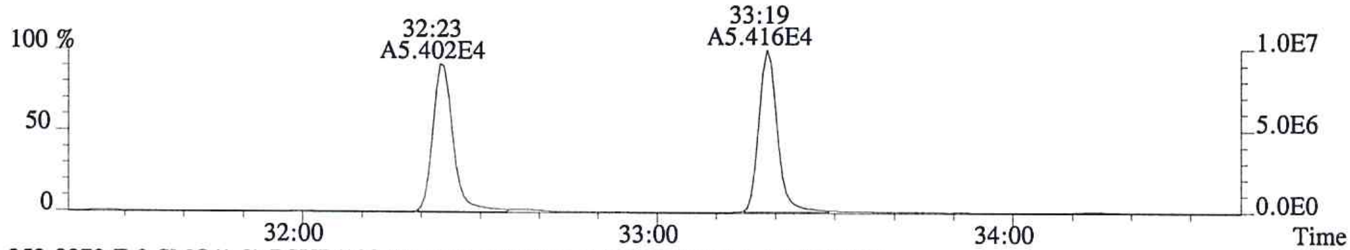
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



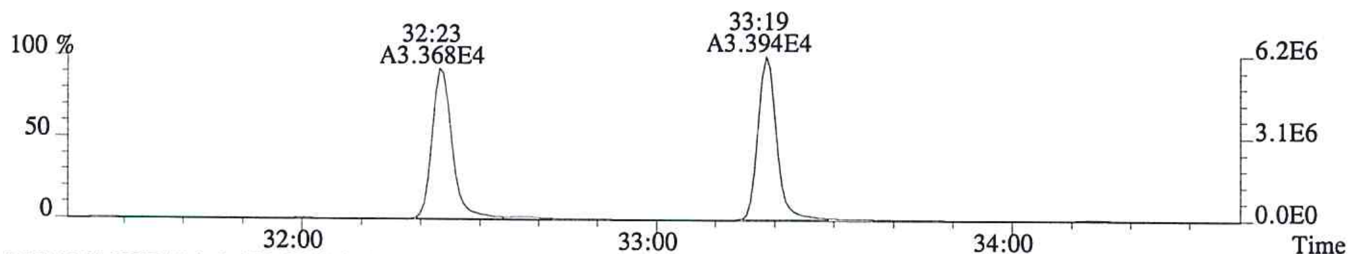
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2208.0,1.00%,F,T)



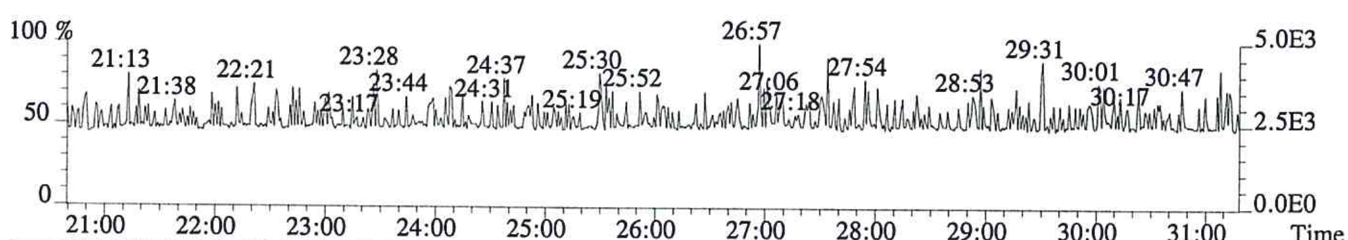
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19044.0,1.00%,F,T)



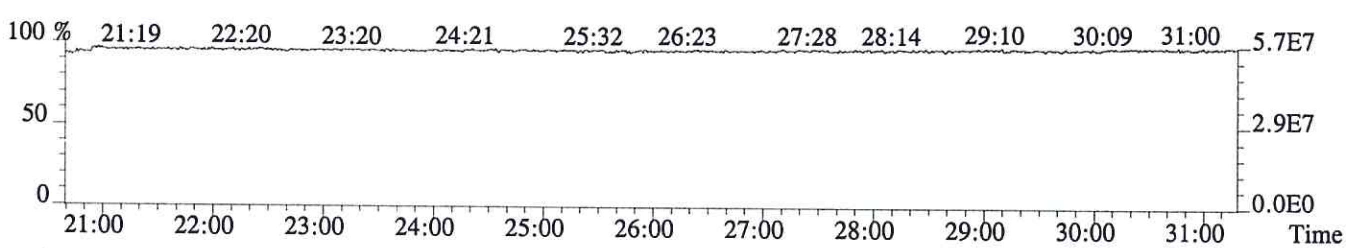
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9552.0,1.00%,F,T)



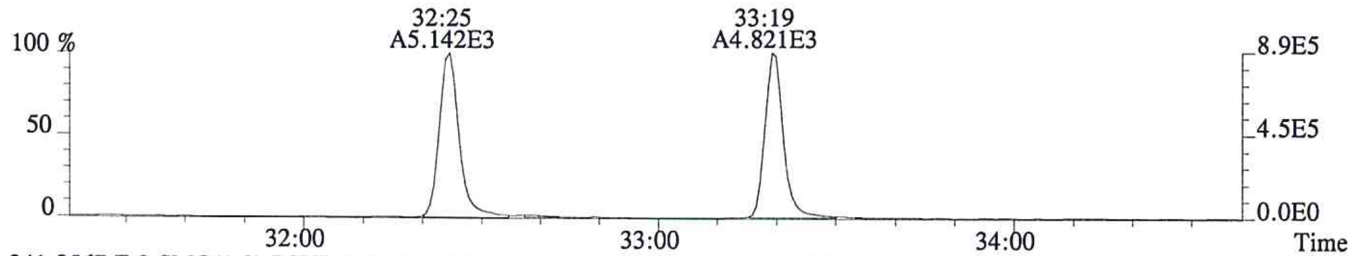
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



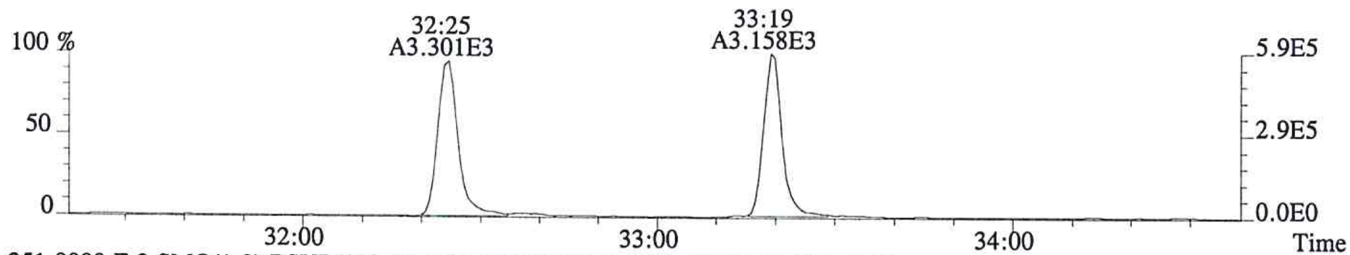
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



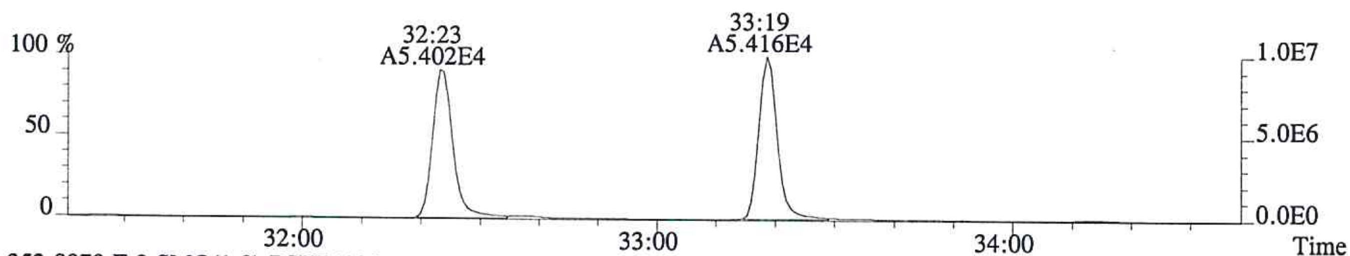
File:P603983 #1-298 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



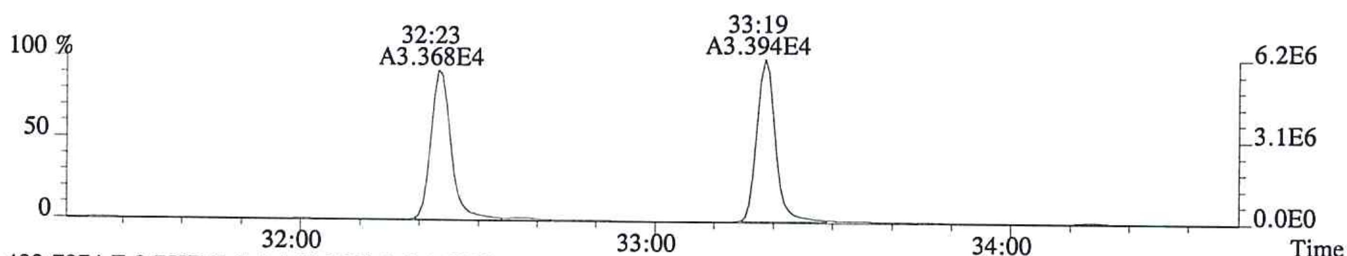
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3364.0,1.00%,F,T)



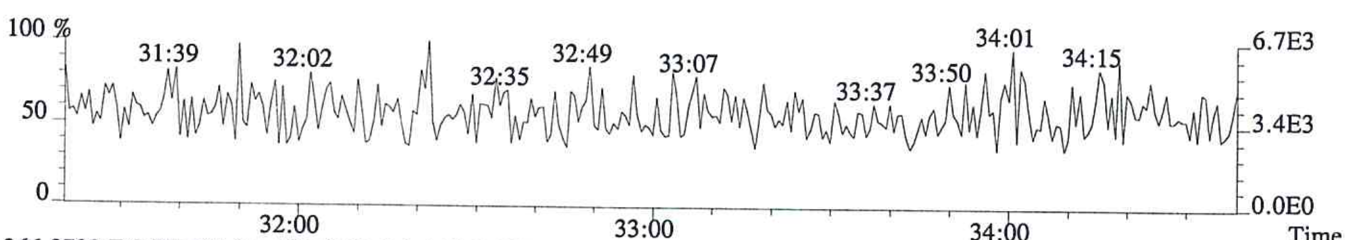
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19044.0,1.00%,F,T)



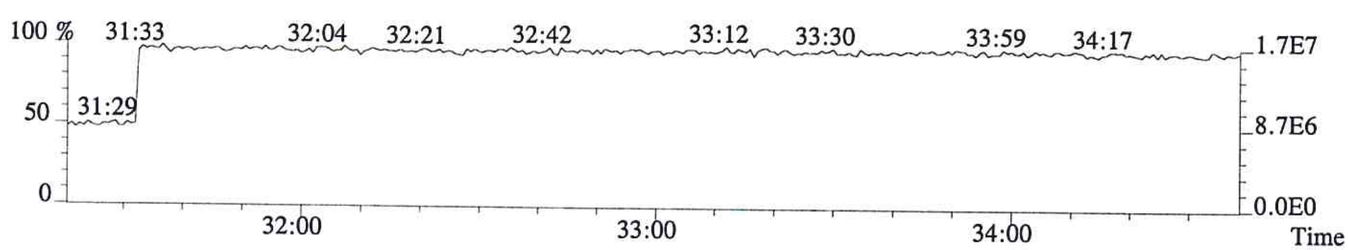
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9552.0,1.00%,F,T)



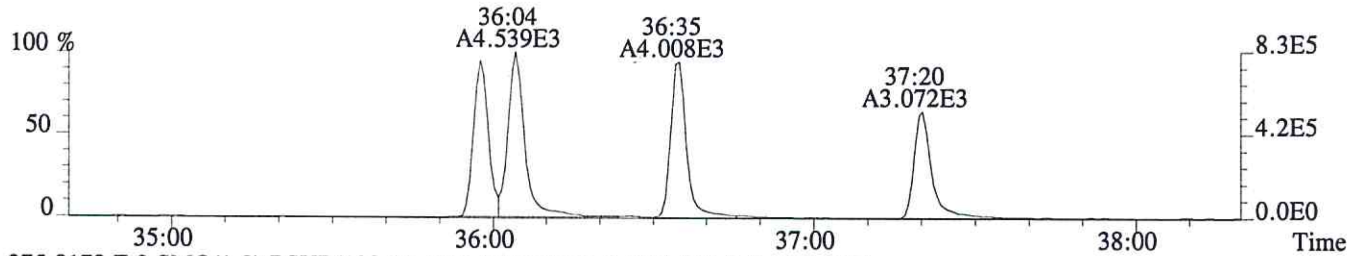
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



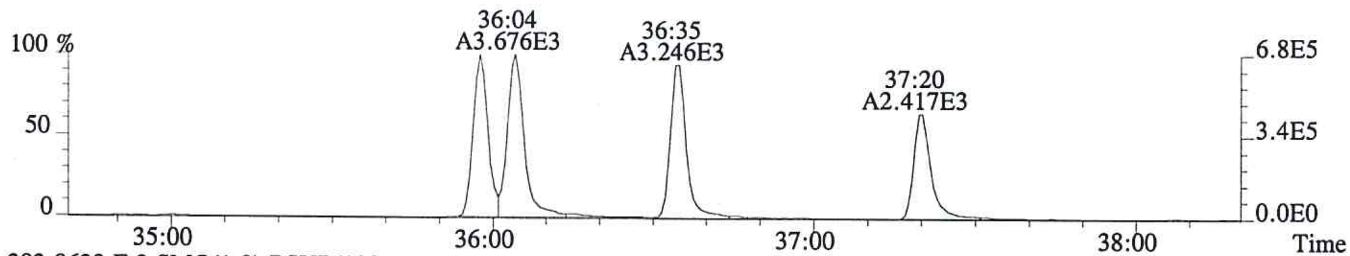
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



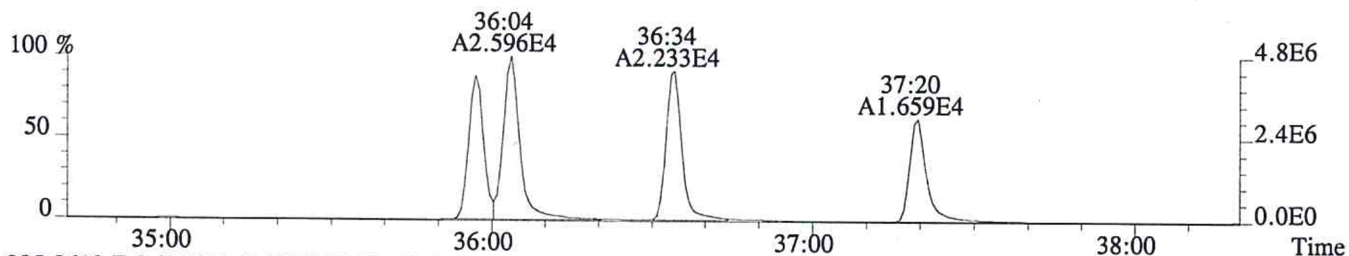
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



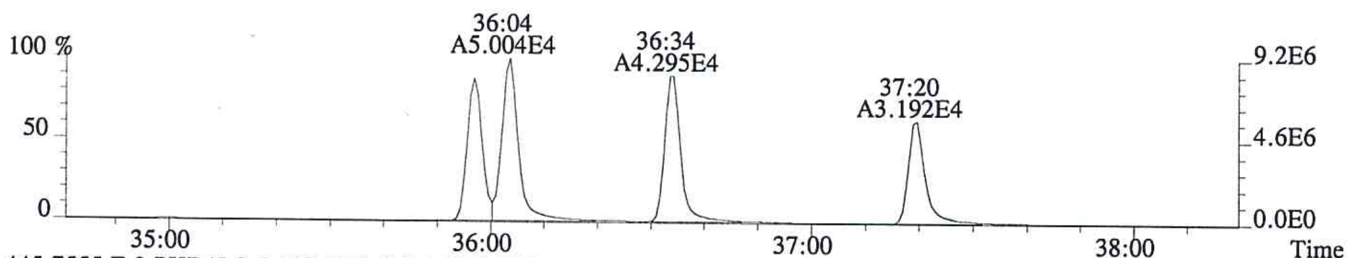
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



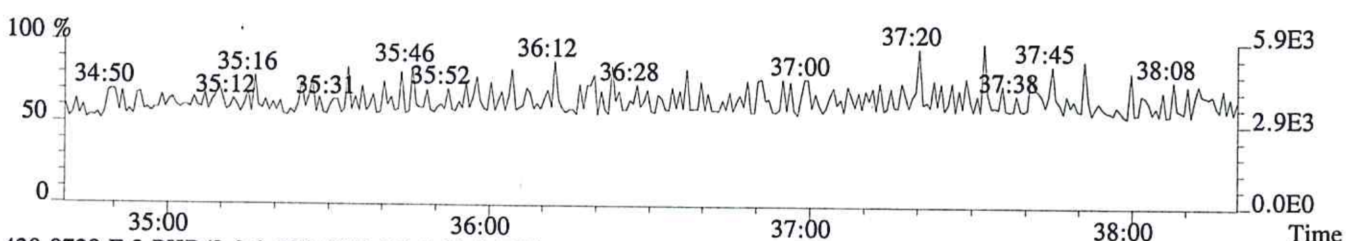
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



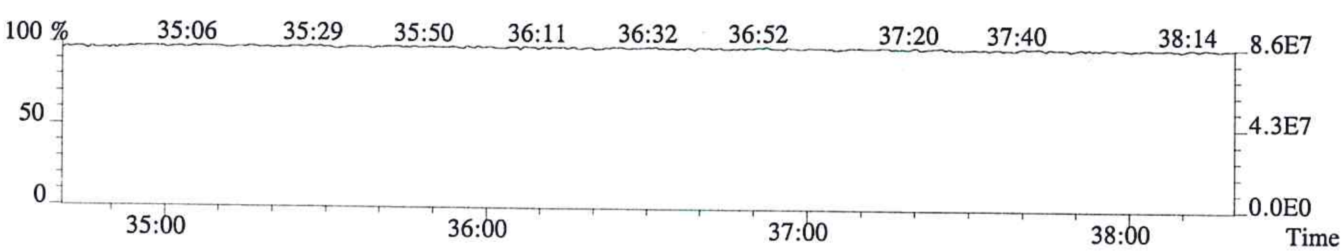
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



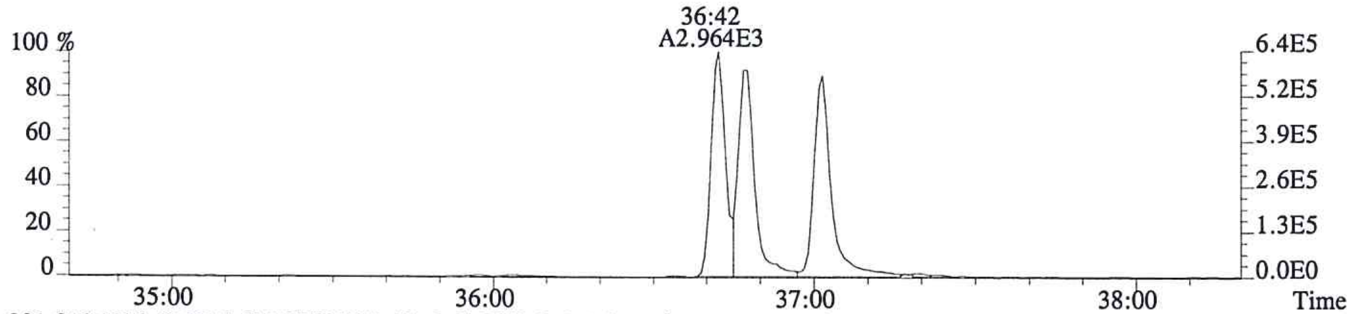
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



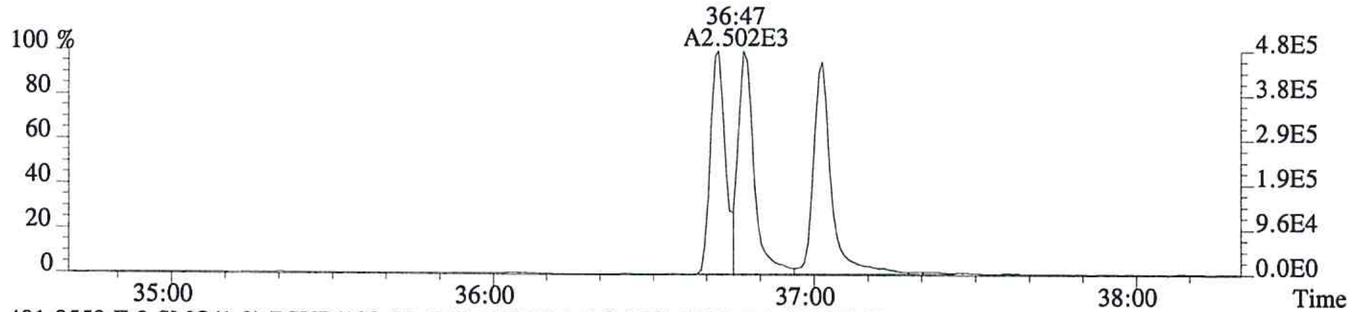
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



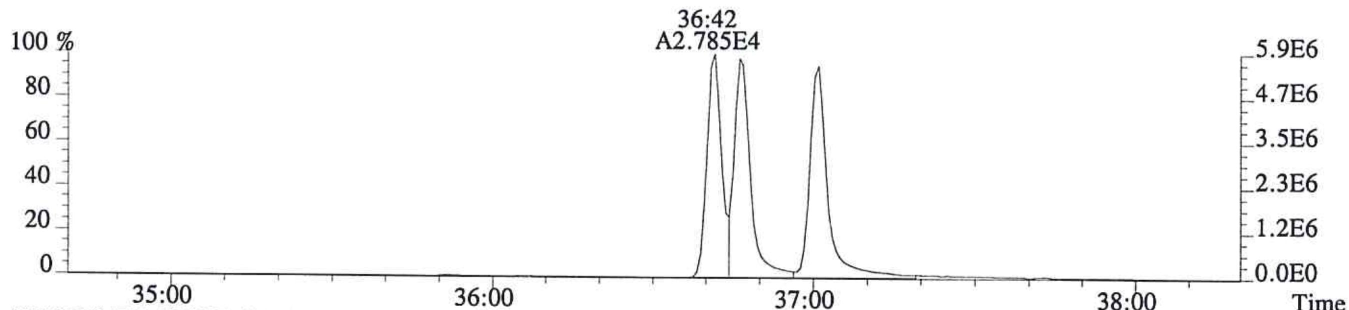
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



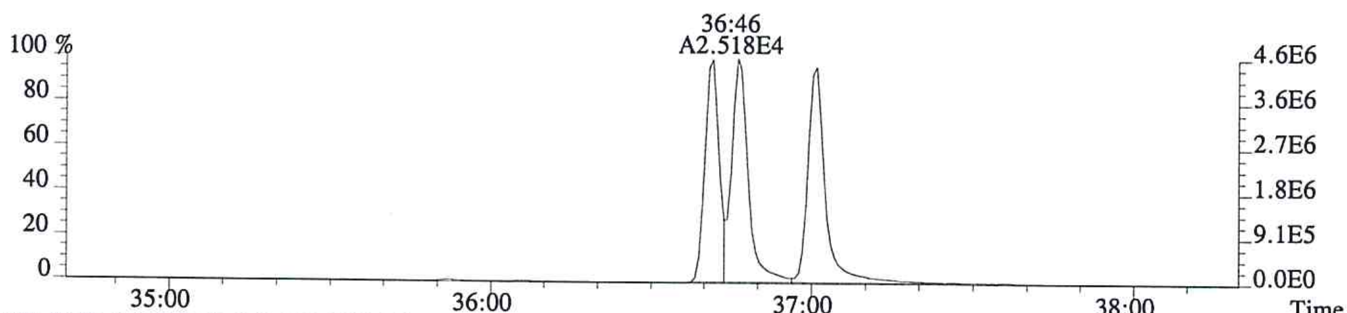
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



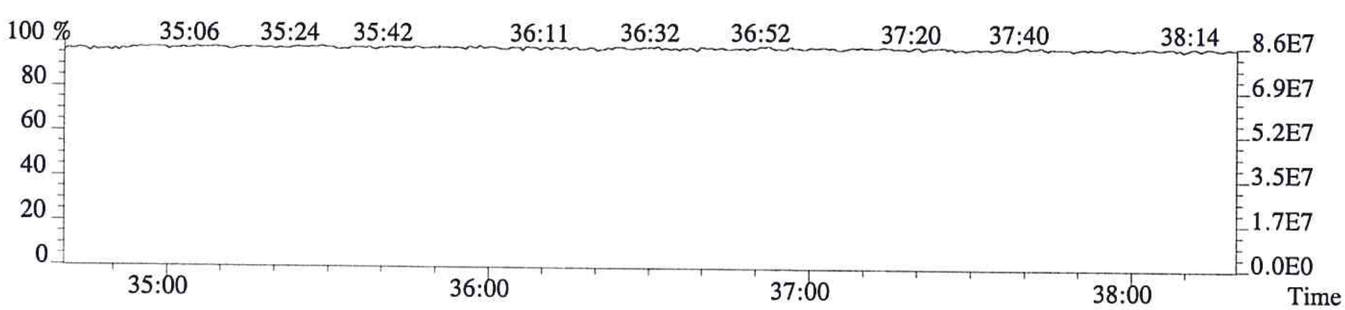
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2312.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	6.879e+03	8.895e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.946e+04	3.185e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.200e+03	6.636e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	7.245e+04	9.072e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.083e+05	6.772e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.074e+05	6.710e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.456e+04	6.770e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	5.981e+04	7.456e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	5.212e+04	6.669e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	5.576e+04	7.031e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	6.329e+04	5.113e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.213e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.22e+06	1.06e+03	1.2e+03	1.59e+06	4.41e+03	3.6e+02
3	2,3,4,7,8-PeCDF	9.20e+06	1.30e+04	7.1e+02	6.00e+06	9.93e+03	6.0e+02
11	2,3,7,8-TCDD	9.42e+05	1.36e+03	6.9e+02	1.22e+06	1.25e+03	9.7e+02
18	13C-2,3,7,8-TCDF	1.28e+07	4.69e+03	2.7e+03	1.60e+07	3.17e+03	5.0e+03
19	13C-1,2,3,7,8-PeCDF	1.89e+07	2.06e+04	9.2e+02	1.20e+07	1.57e+04	7.6e+02
20	13C-2,3,4,7,8-PeCDF	2.04e+07	2.06e+04	9.9e+02	1.28e+07	1.57e+04	8.2e+02
24	13C-1,2,3,7,8,9-HxCDF	6.60e+06	2.15e+03	3.1e+03	1.28e+07	2.19e+03	5.8e+03
26	13C-1,2,3,4-TCDF	9.83e+06	4.69e+03	2.1e+03	1.24e+07	3.17e+03	3.9e+03
27	13C-2,3,7,8-TCDD	9.62e+06	9.05e+03	1.1e+03	1.23e+07	4.67e+03	2.6e+03
33	13C-1,2,3,4-TCDD	1.05e+07	9.05e+03	1.2e+03	1.32e+07	4.67e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.94e+03	6.2e+03	9.53e+06	1.50e+03	6.4e+03
35	37Cl-2,3,7,8-TCDD	2.22e+06	2.64e+03	8.4e+02			

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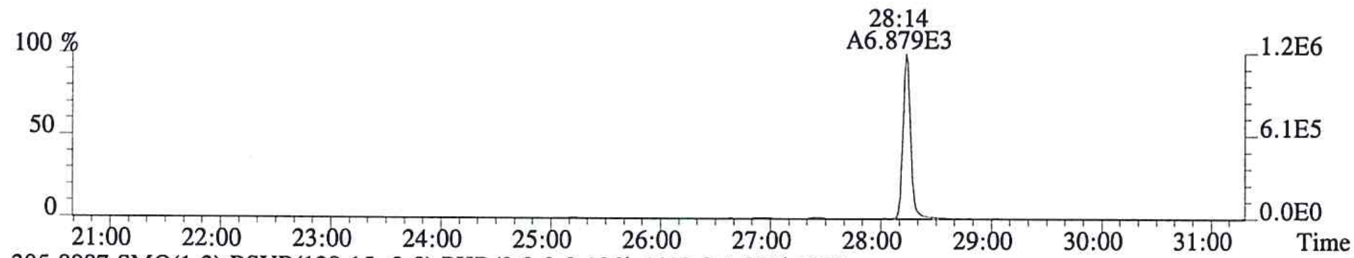
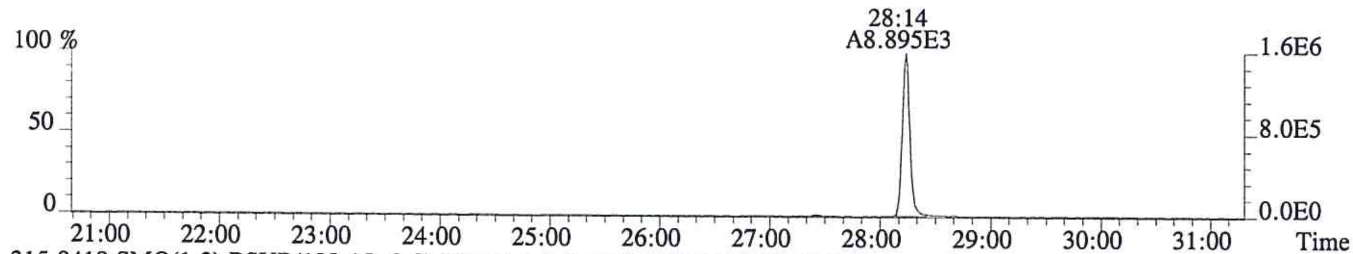
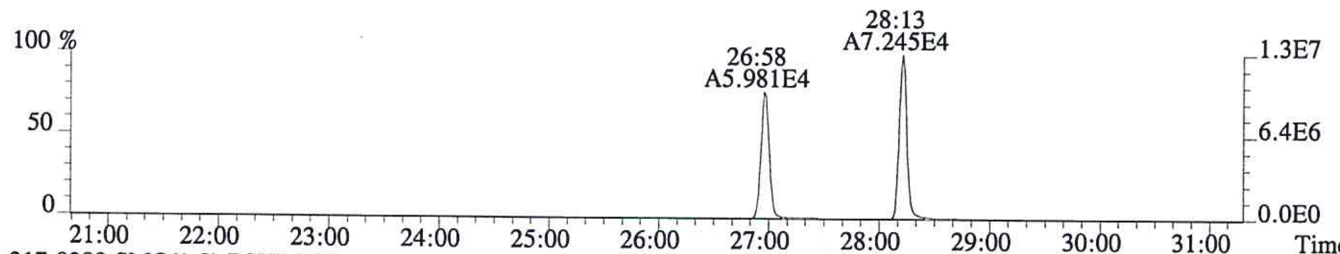
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



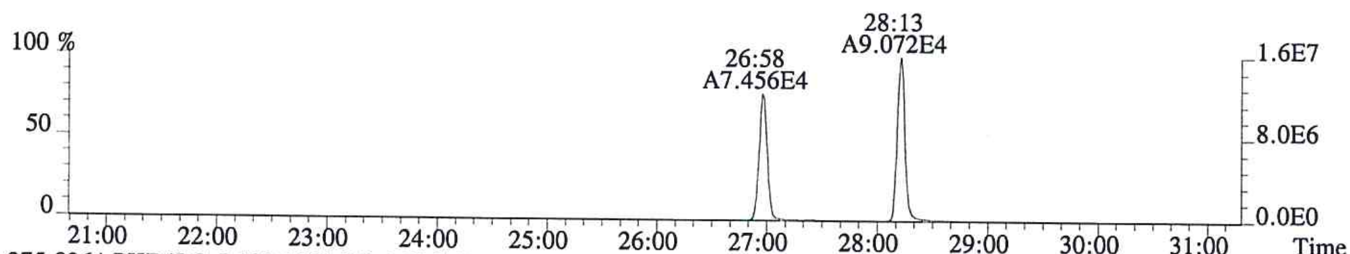
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



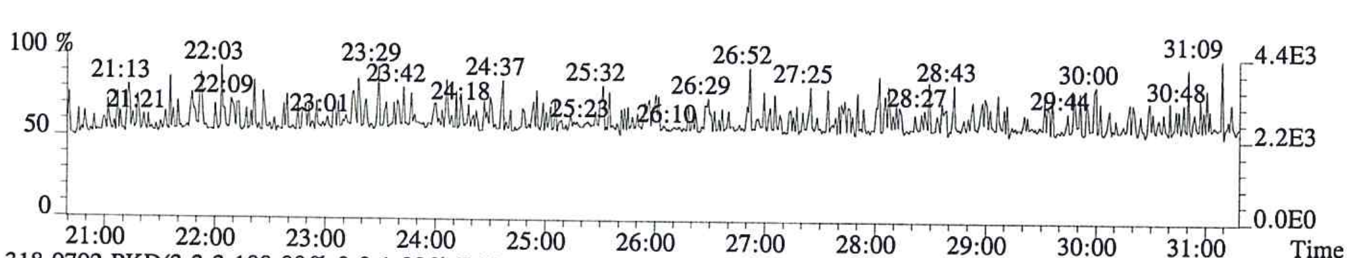
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4688.0,1.00%,F,T)



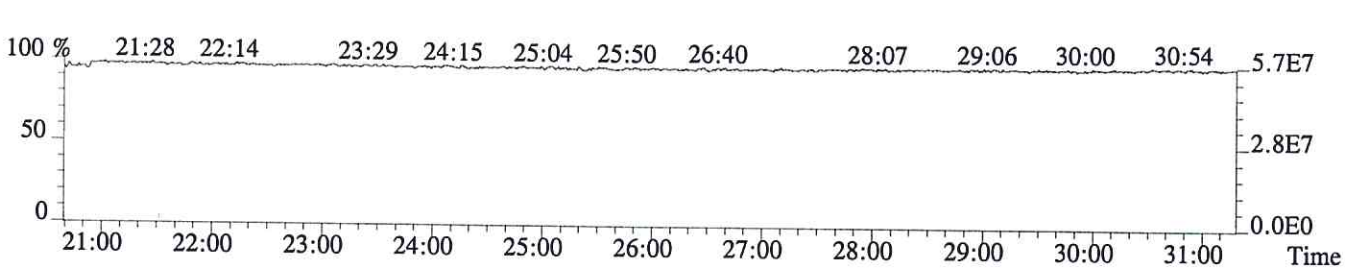
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

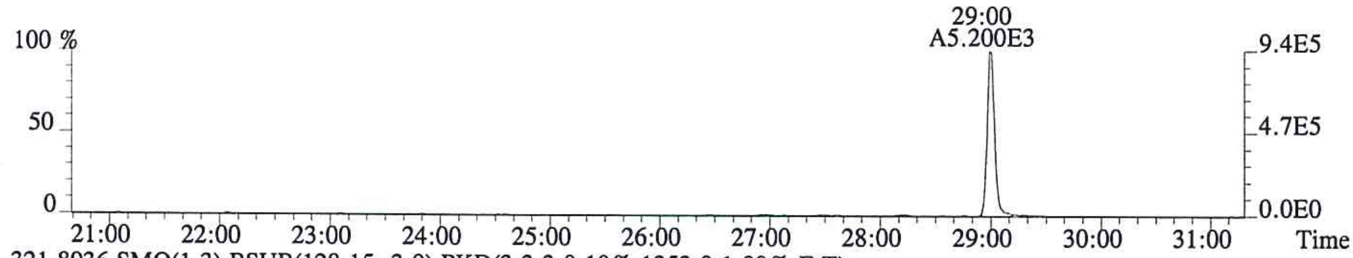


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

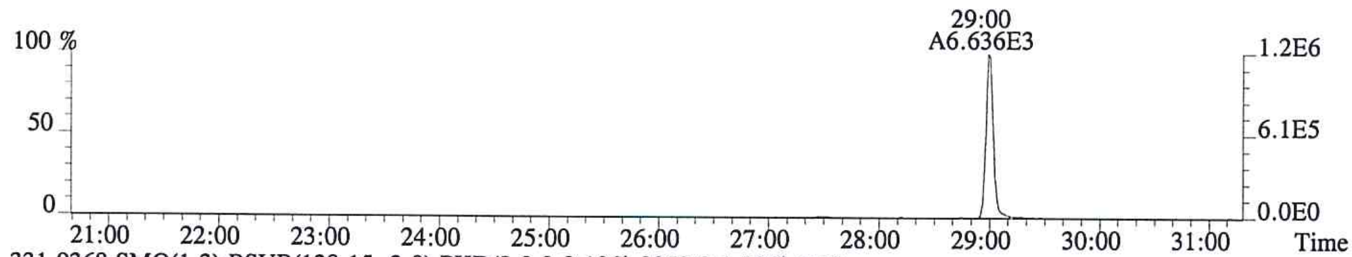


File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

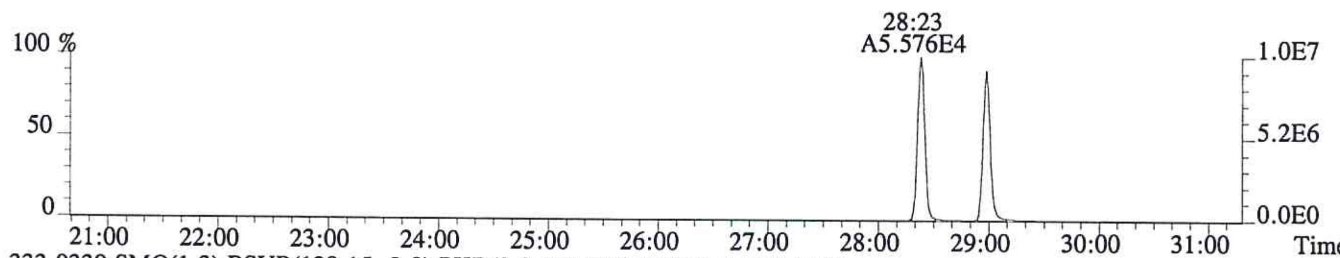
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



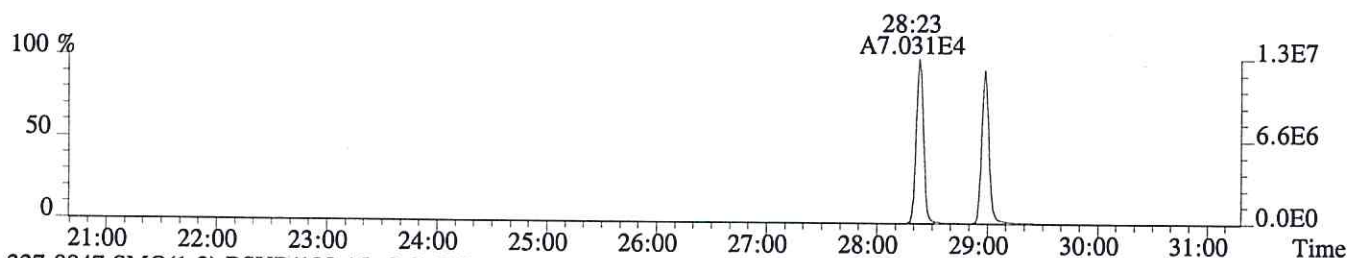
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



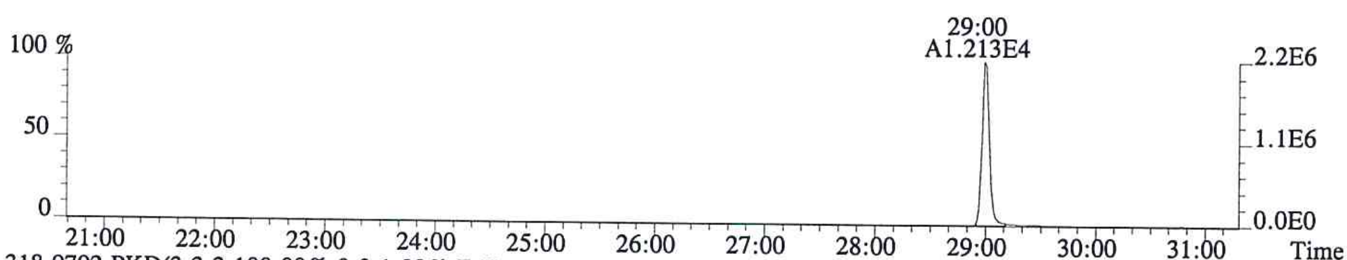
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9052.0,1.00%,F,T)



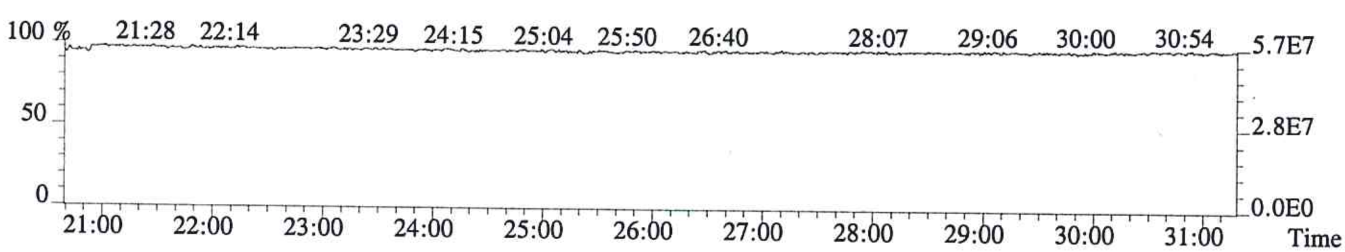
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



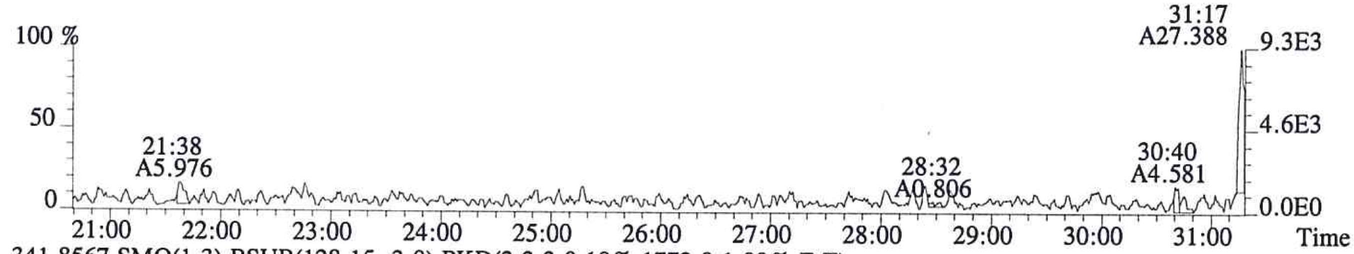
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



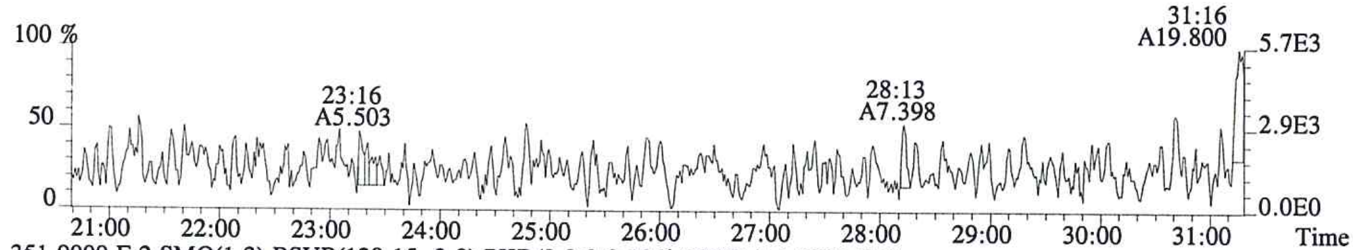
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



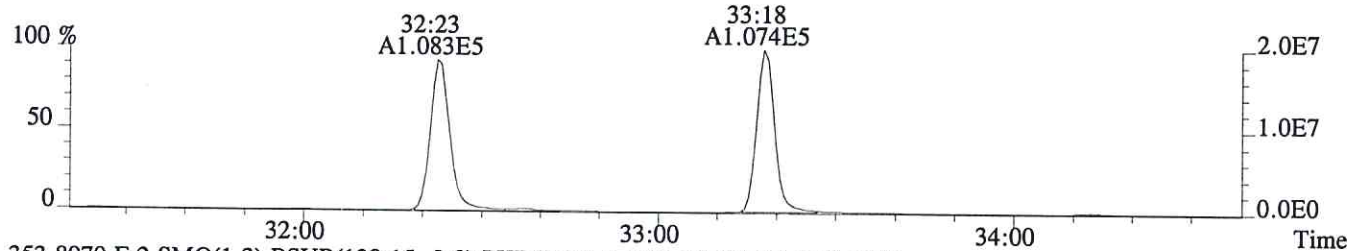
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



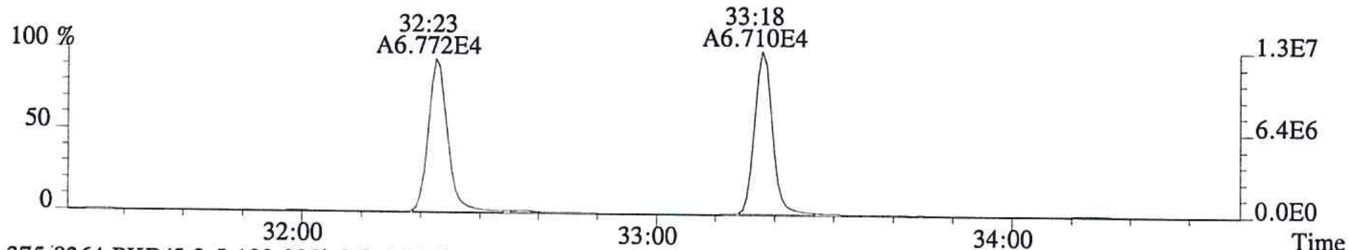
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



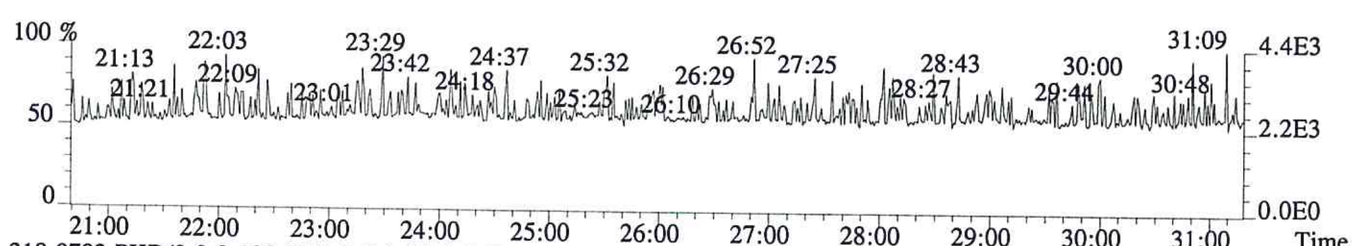
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20608.0,1.00%,F,T)



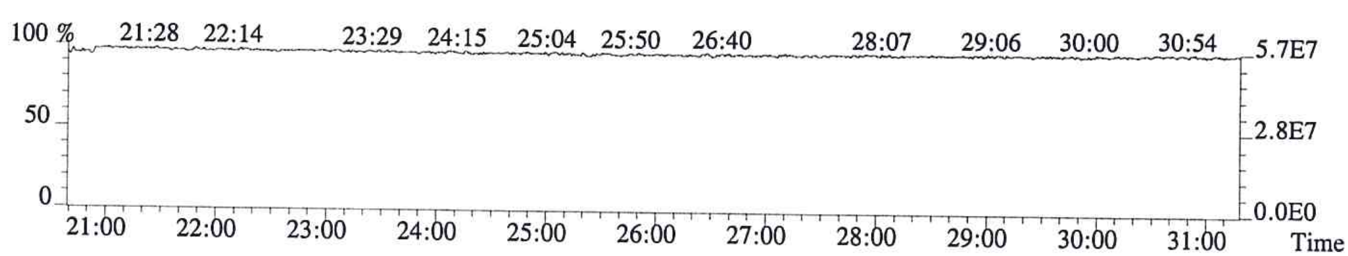
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15668.0,1.00%,F,T)



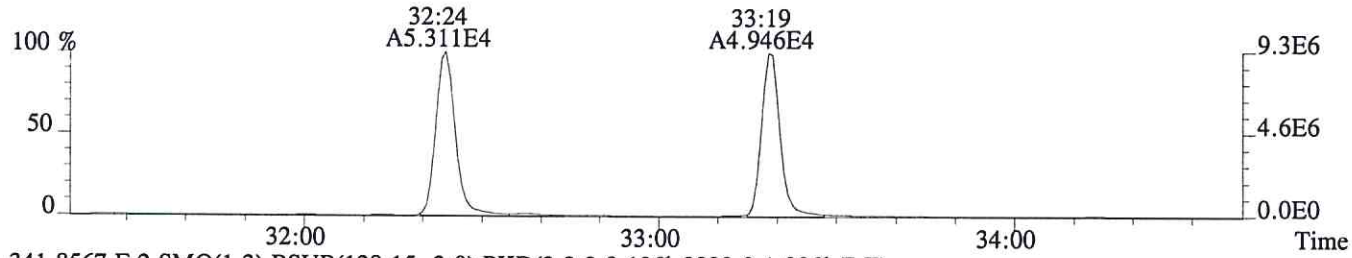
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



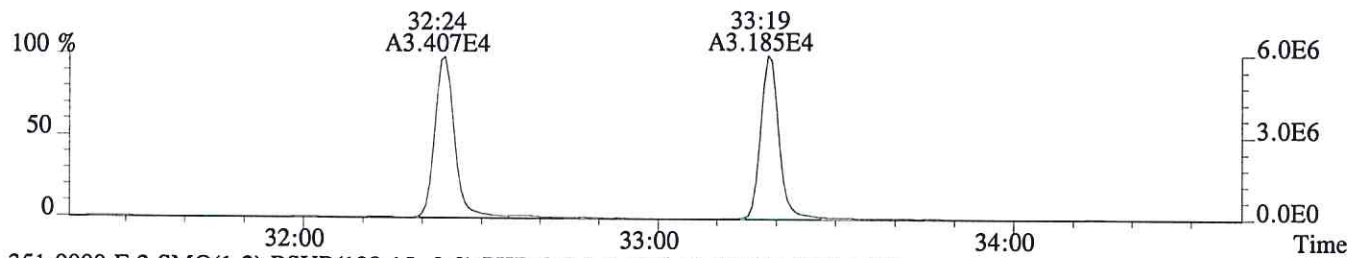
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



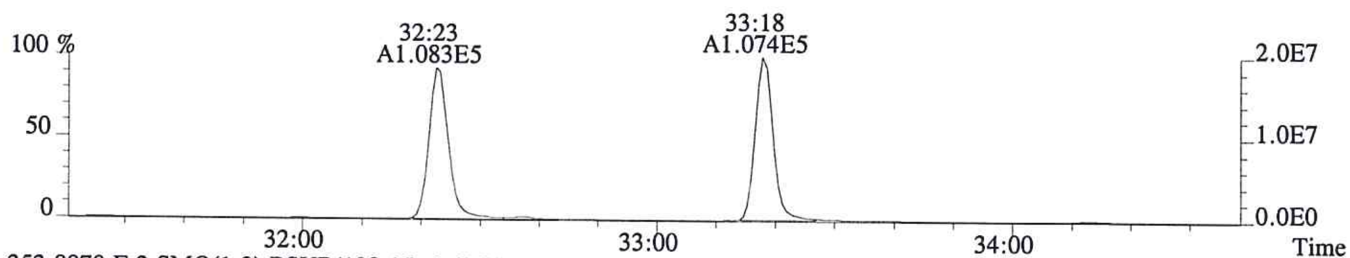
File:P603984 #1-298 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12960.0,1.00%,F,T)



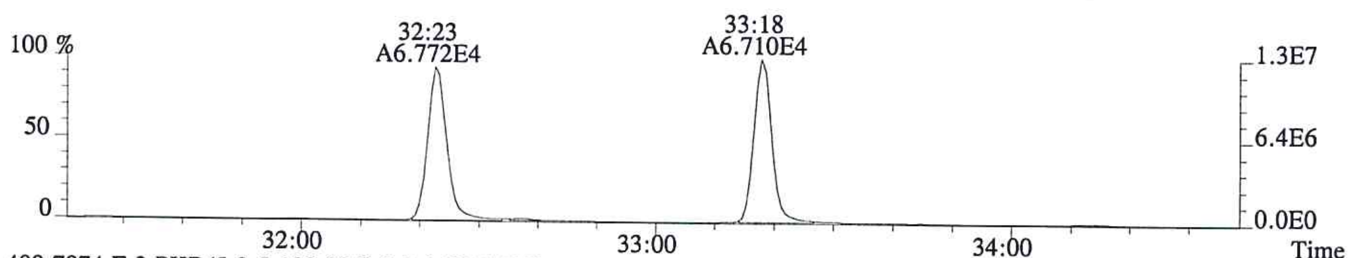
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9932.0,1.00%,F,T)



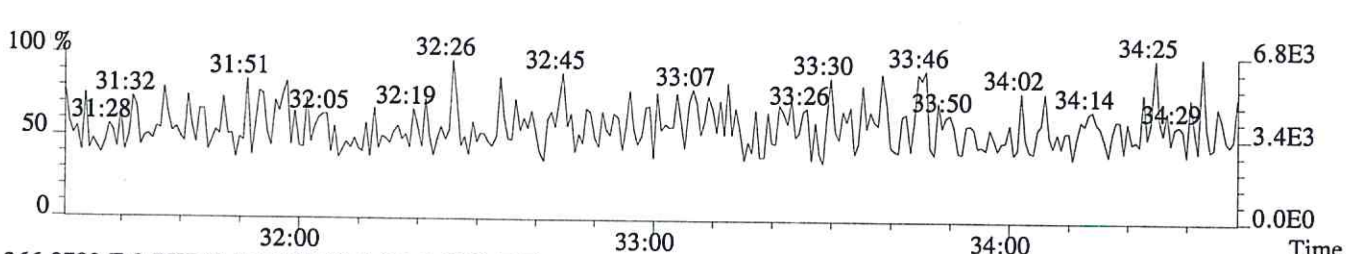
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20608.0,1.00%,F,T)



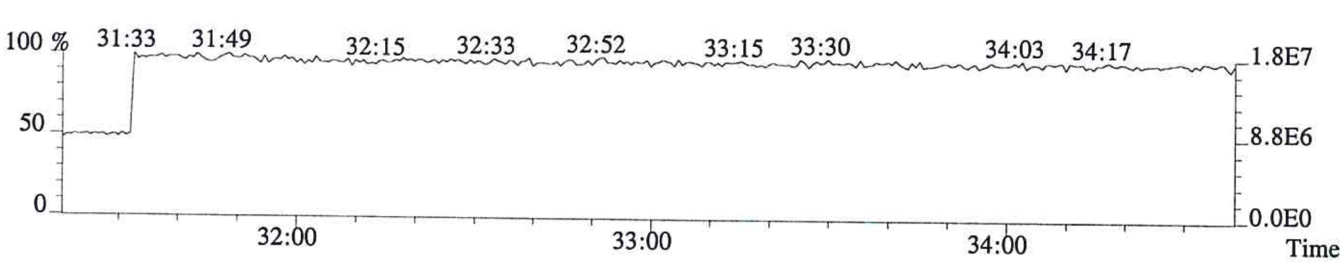
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15668.0,1.00%,F,T)



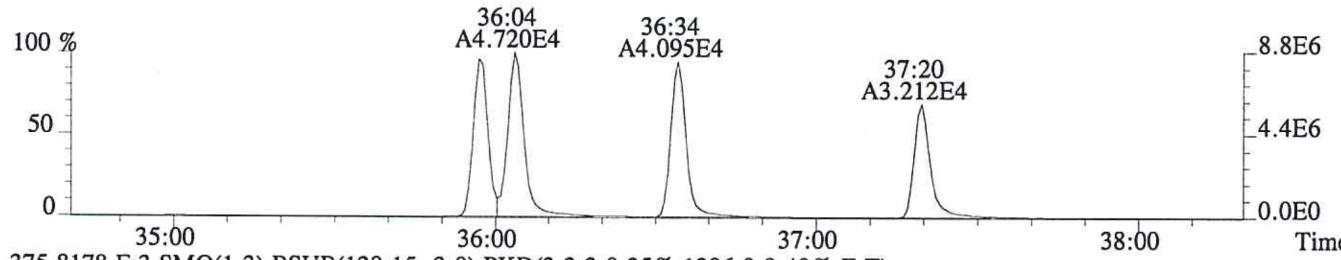
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



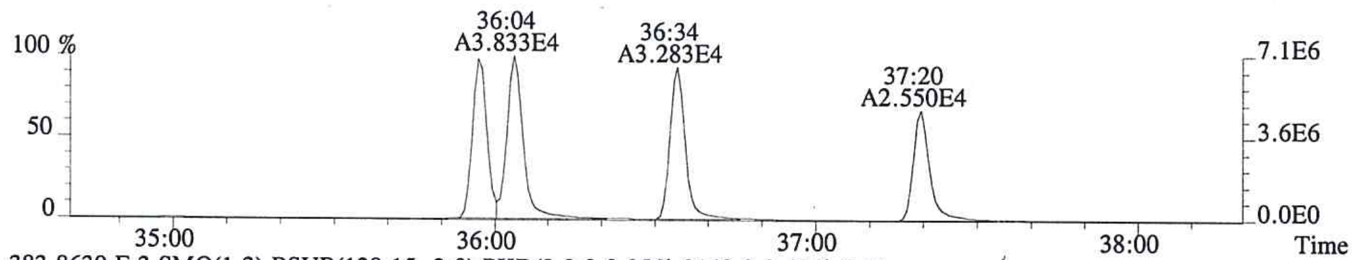
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



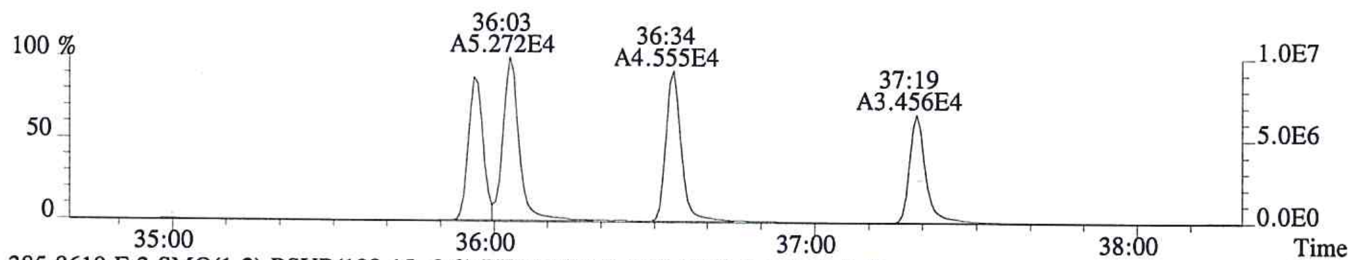
File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



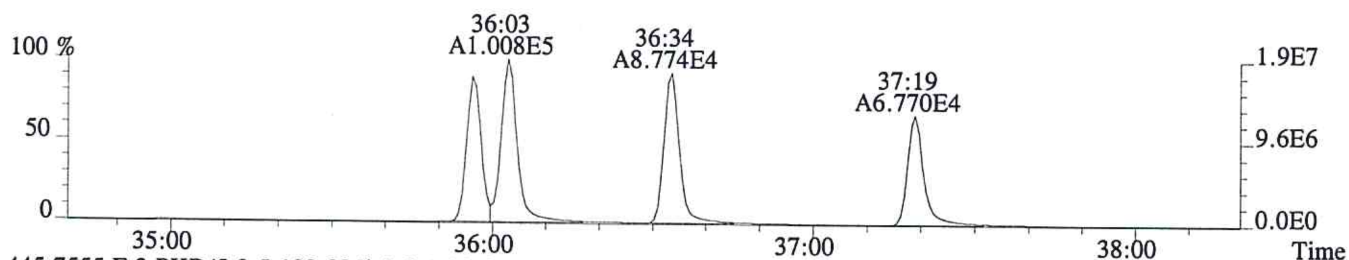
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



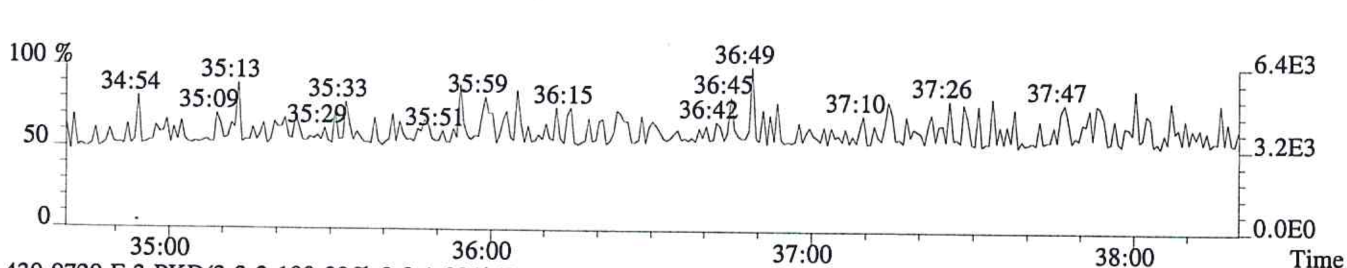
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.40%,F,T)



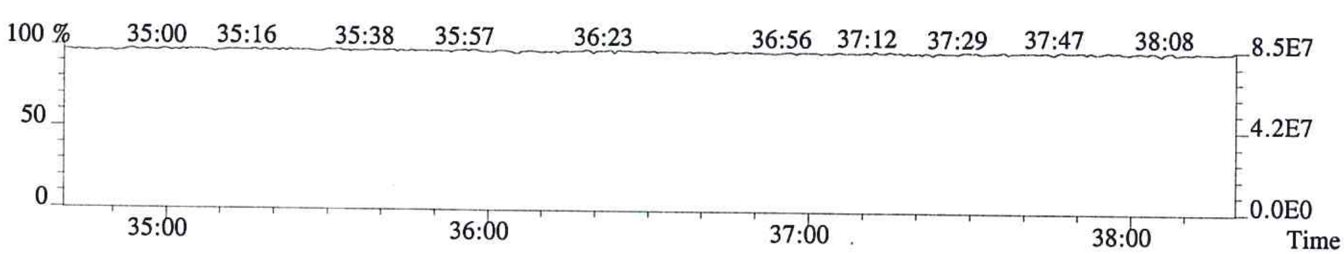
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)



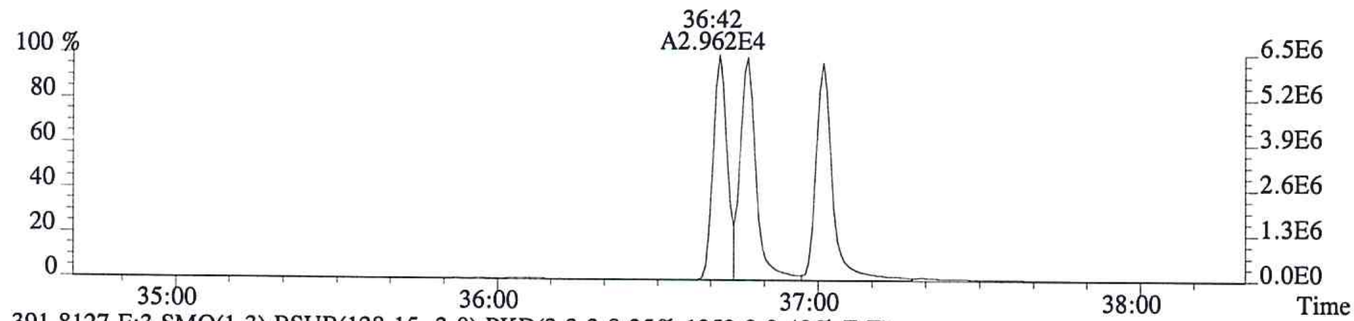
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



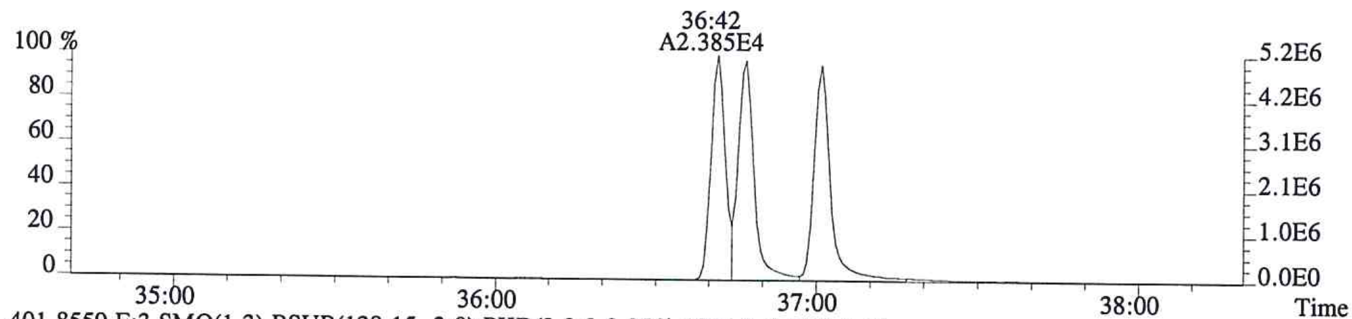
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



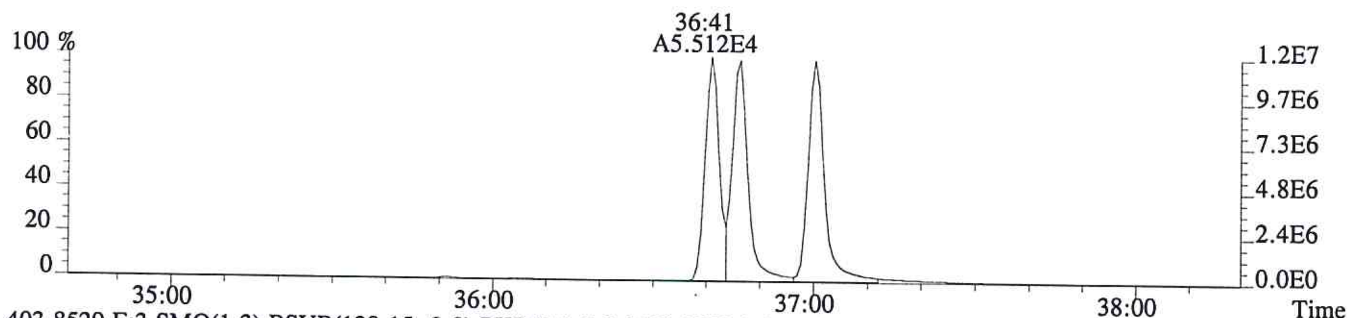
File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



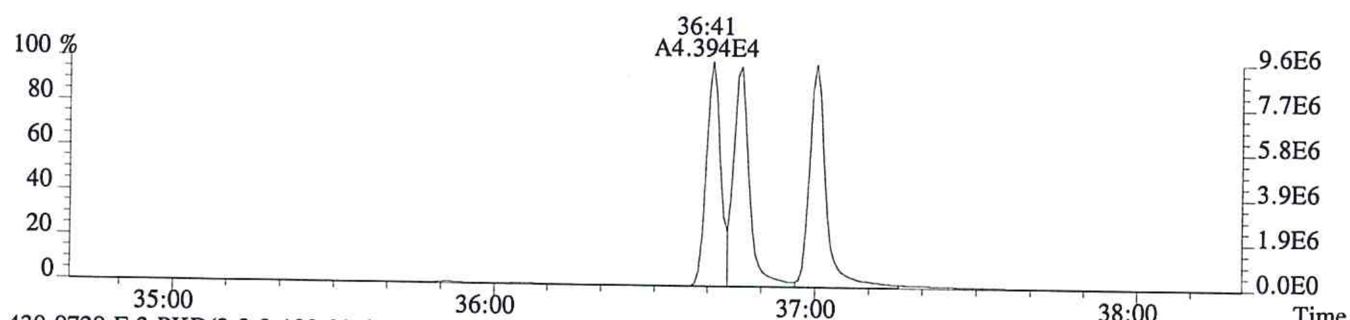
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



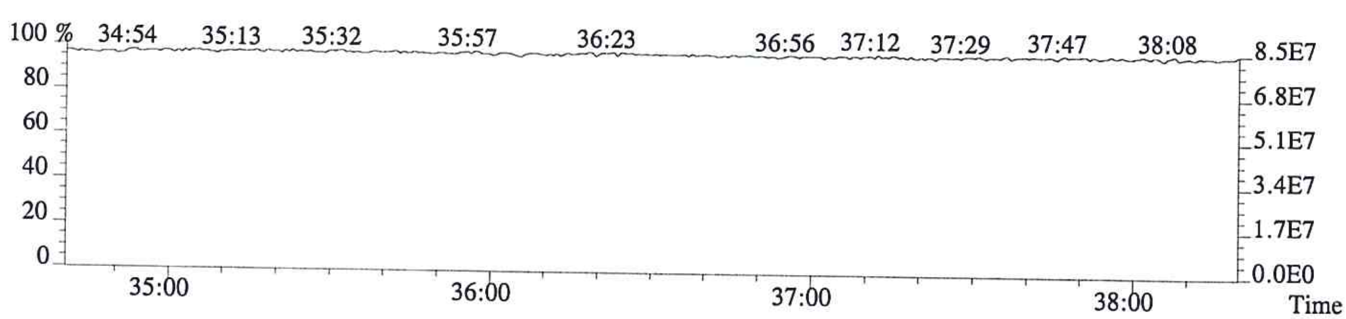
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.595e+04	2.078e+04	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.157e+05	7.439e+04	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.221e+04	1.554e+04	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	4.217e+04	5.242e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.222e+04	3.890e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	6.169e+04	3.829e+04	1.61	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.000e+04	3.842e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.265e+04	5.368e+04	0.79	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	3.003e+04	3.830e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	3.211e+04	4.076e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.705e+04	2.987e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	2.794e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
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ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.81e+06	1.30e+03	2.2e+03	3.64e+06	4.14e+03	8.8e+02
3	2,3,4,7,8-PeCDF	2.21e+07	2.52e+04	8.8e+02	1.43e+07	2.29e+04	6.2e+02
11	2,3,7,8-TCDD	2.23e+06	1.02e+03	2.2e+03	2.90e+06	1.31e+03	2.2e+03
18	13C-2,3,7,8-TCDF	7.32e+06	6.01e+03	1.2e+03	9.03e+06	4.38e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	1.09e+07	1.48e+04	7.4e+02	6.85e+06	8.31e+03	8.2e+02
20	13C-2,3,4,7,8-PeCDF	1.18e+07	1.48e+04	8.0e+02	7.28e+06	8.31e+03	8.8e+02
24	13C-1,2,3,7,8,9-HxCDF	3.79e+06	8.16e+02	4.6e+03	7.39e+06	2.79e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.97e+06	6.01e+03	1.2e+03	8.78e+06	4.38e+03	2.0e+03
27	13C-2,3,7,8-TCDD	5.43e+06	9.69e+03	5.6e+02	6.86e+06	4.18e+03	1.6e+03
33	13C-1,2,3,4-TCDD	5.94e+06	9.69e+03	6.1e+02	7.48e+06	4.18e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.80e+06	2.05e+03	3.3e+03	5.47e+06	2.34e+03	2.3e+03
35	37Cl-2,3,7,8-TCDD	5.21e+06	2.06e+03	2.5e+03			

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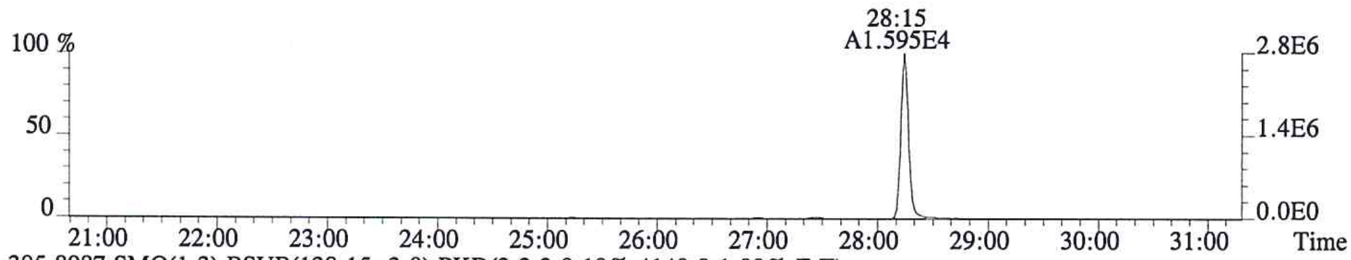
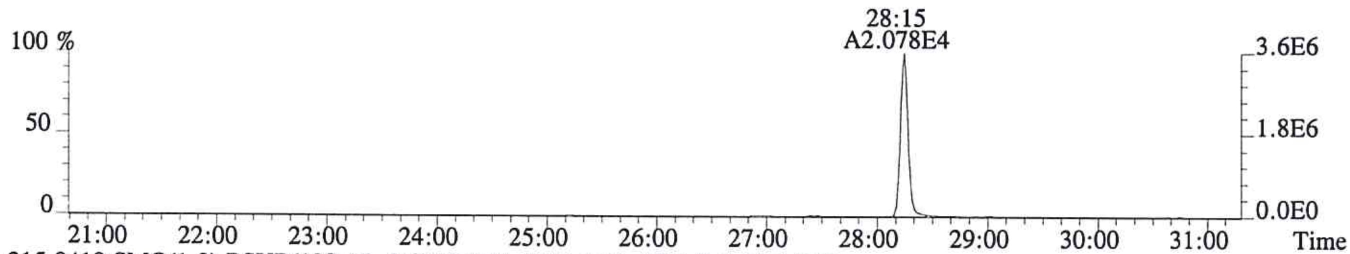
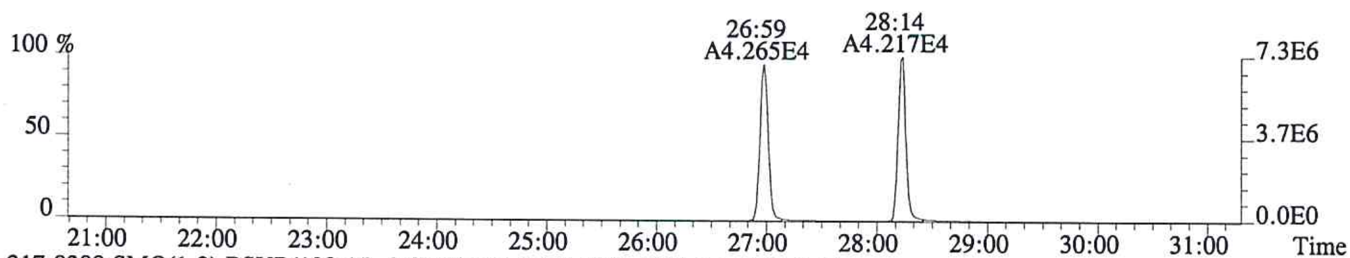
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



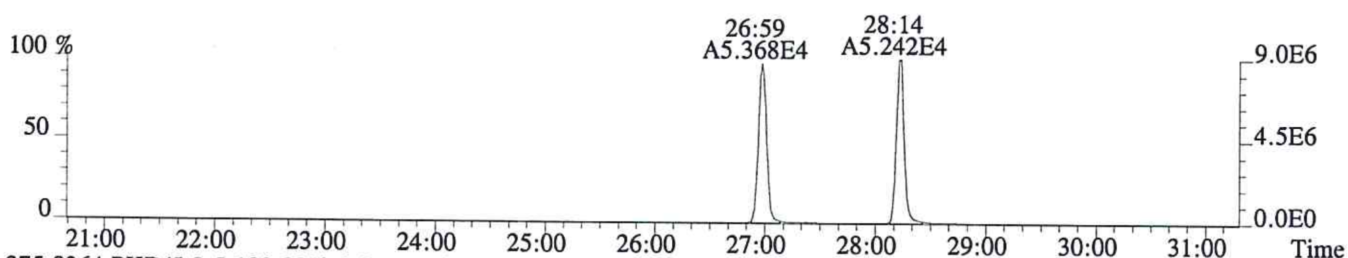
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4140.0,1.00%,F,T)



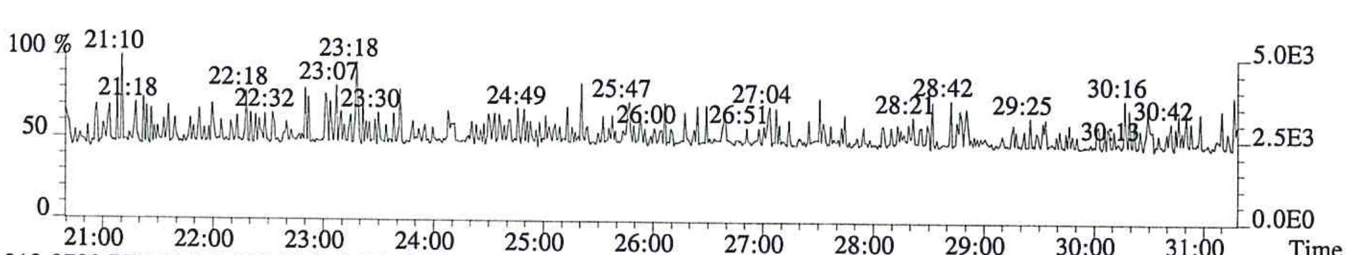
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6012.0,1.00%,F,T)



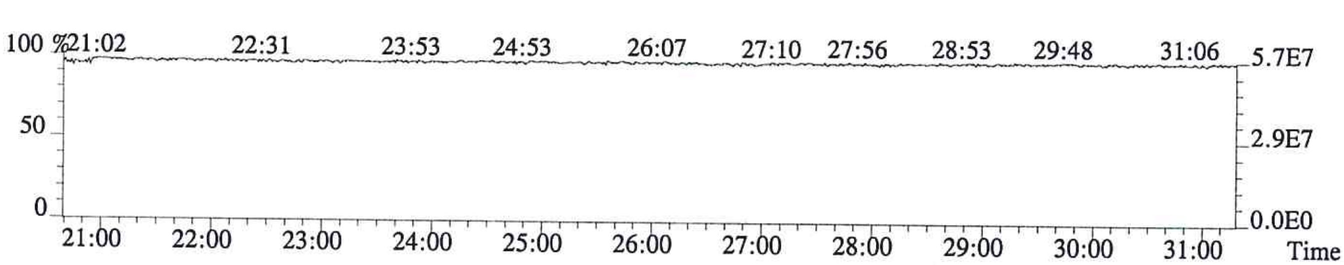
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4384.0,1.00%,F,T)



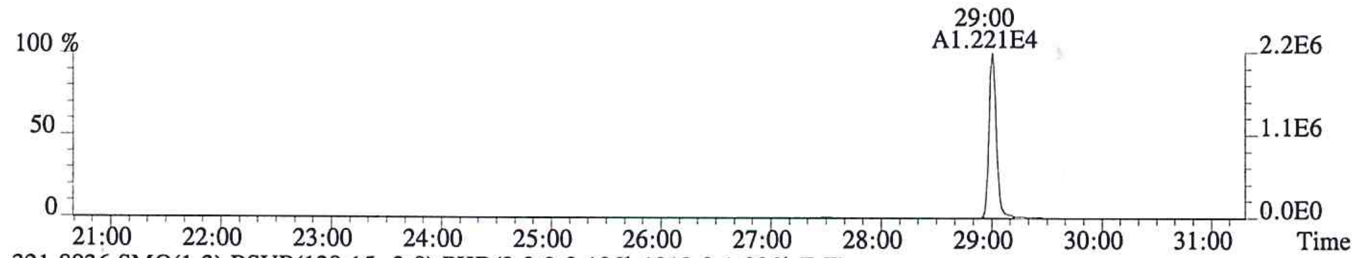
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



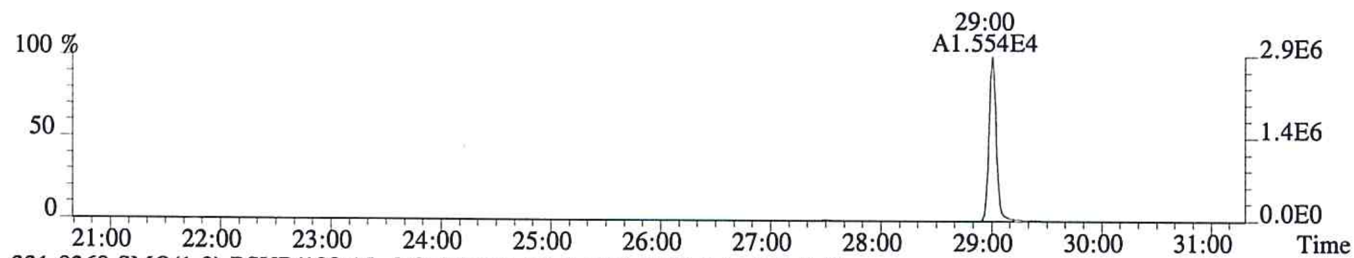
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



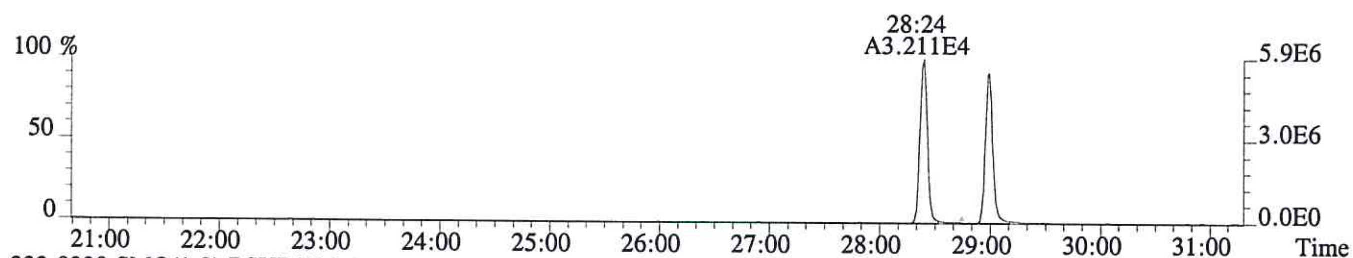
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



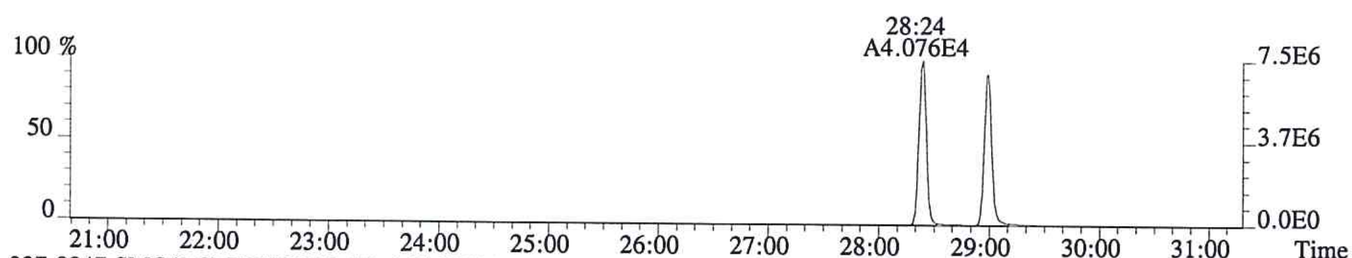
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



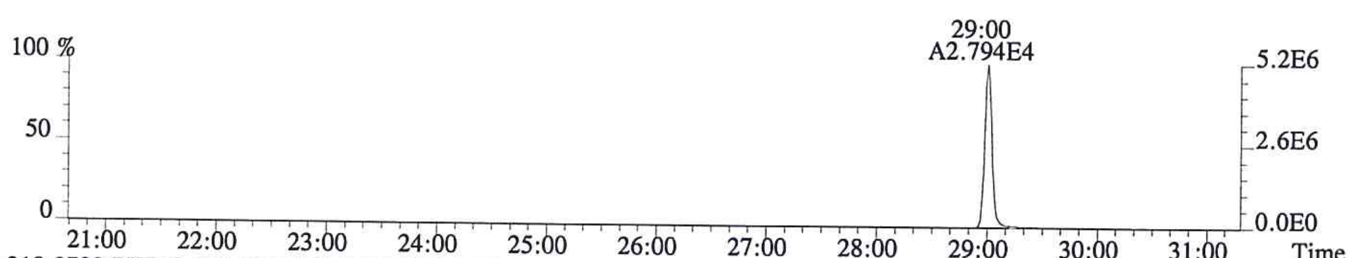
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9688.0,1.00%,F,T)



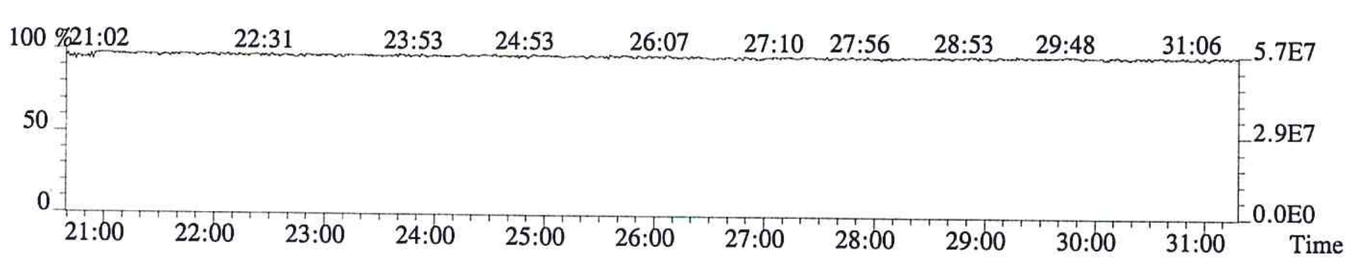
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



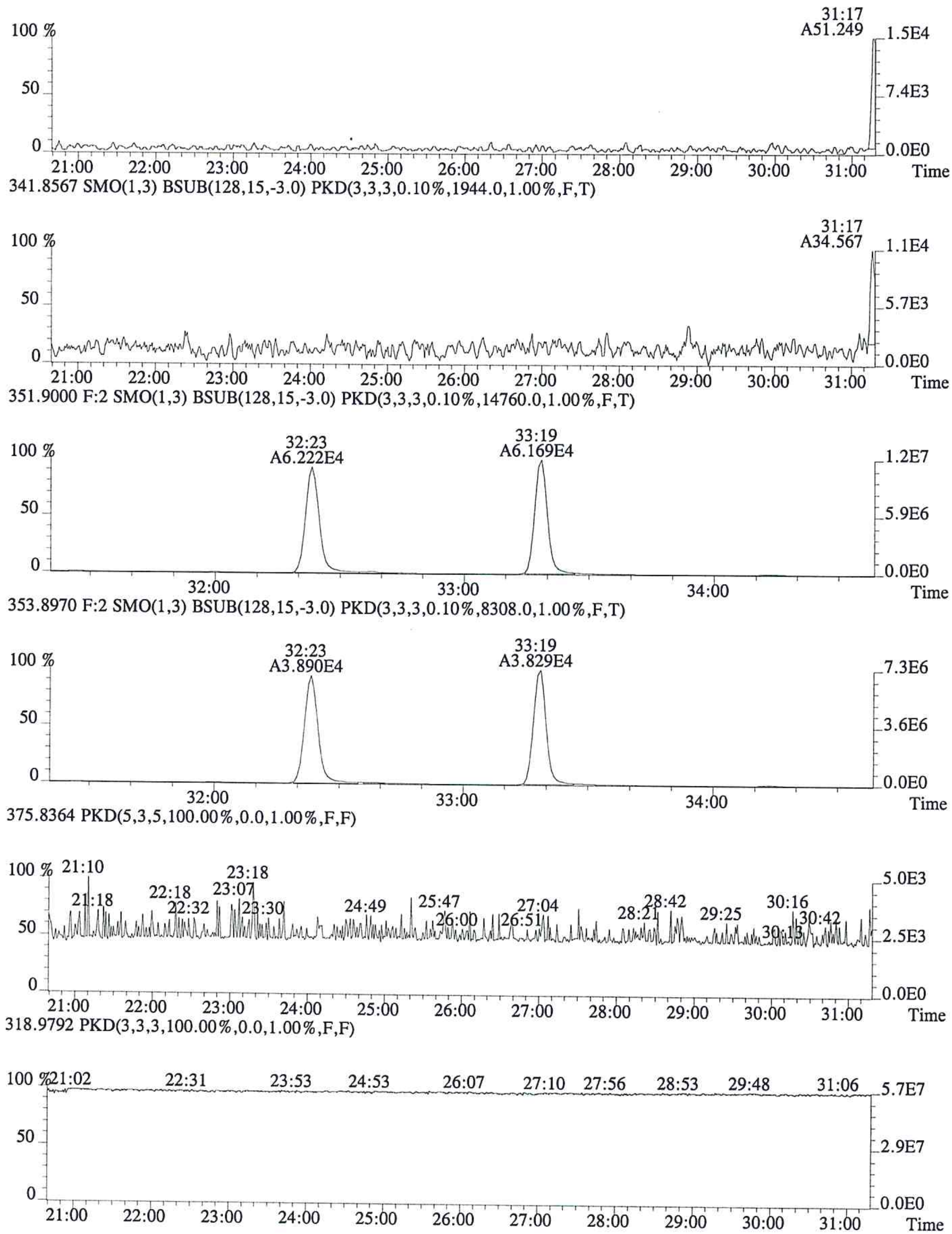
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



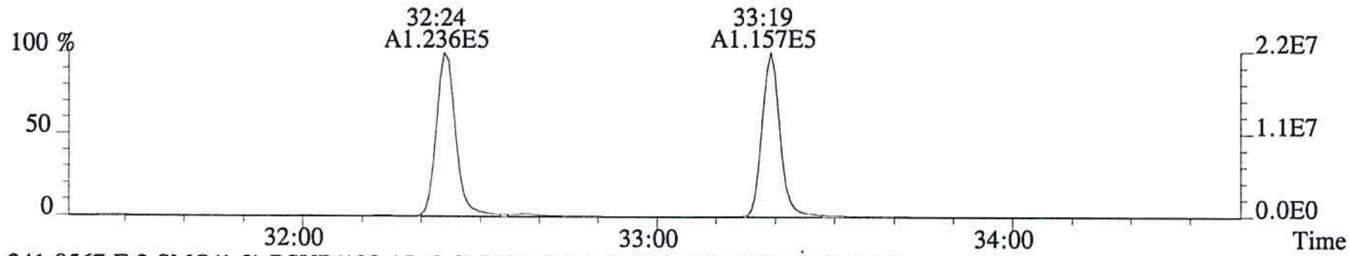
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



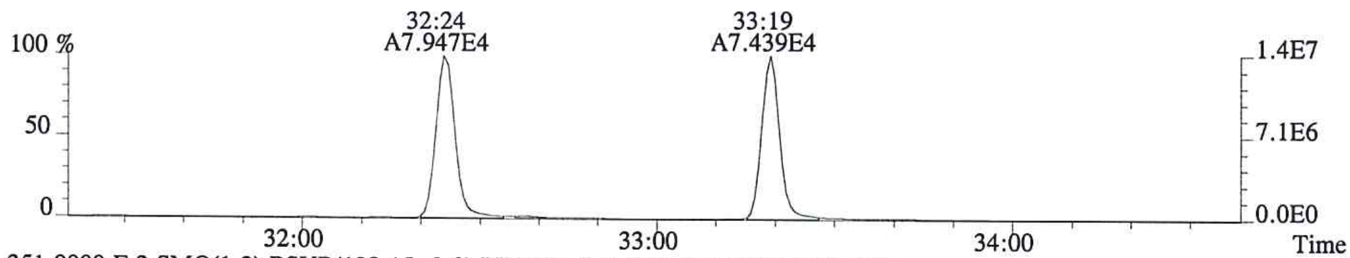
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



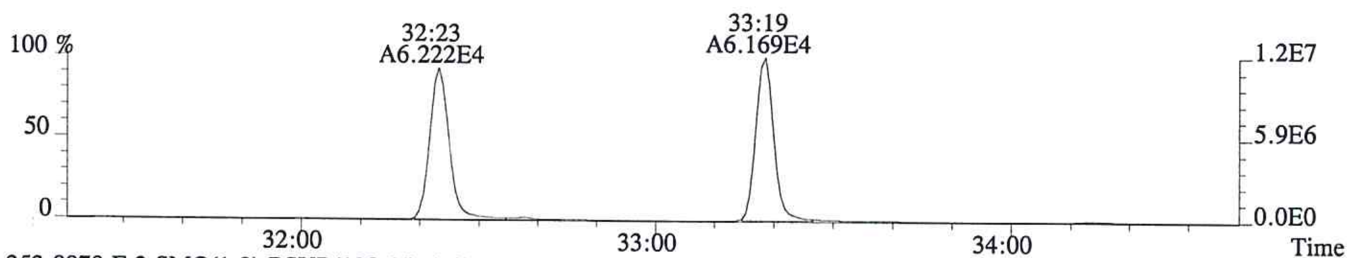
File:P603985 #1-298 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25184.0,1.00%,F,T)



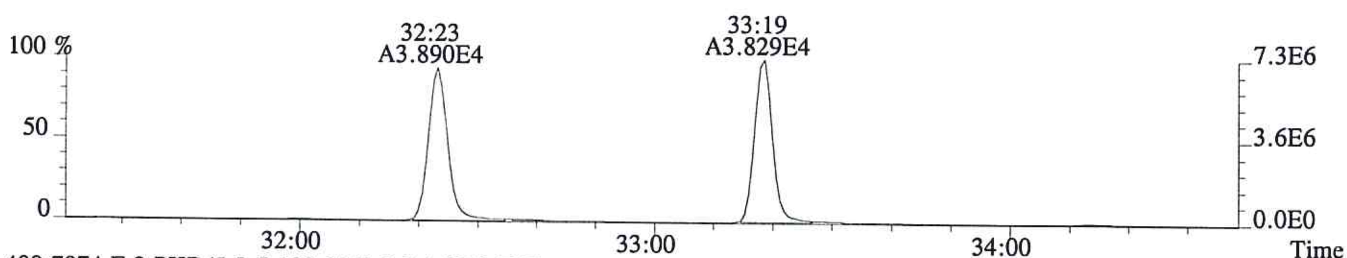
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,22868.0,1.00%,F,T)



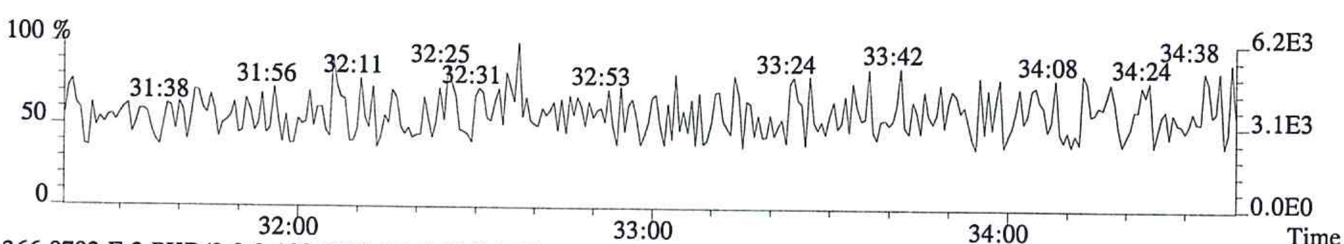
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14760.0,1.00%,F,T)



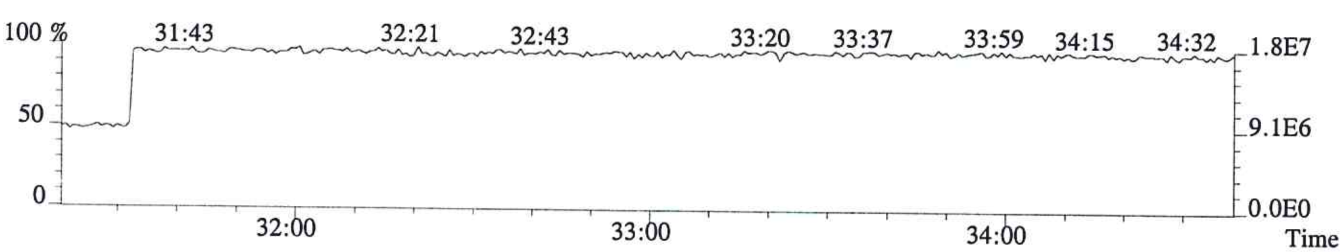
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8308.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

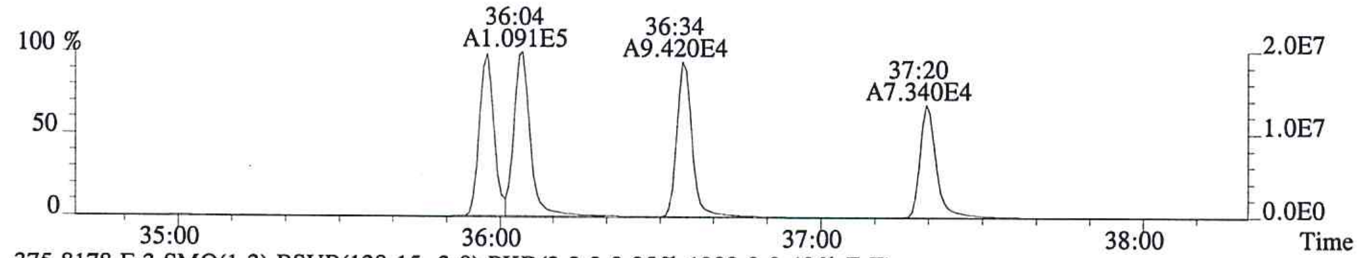


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

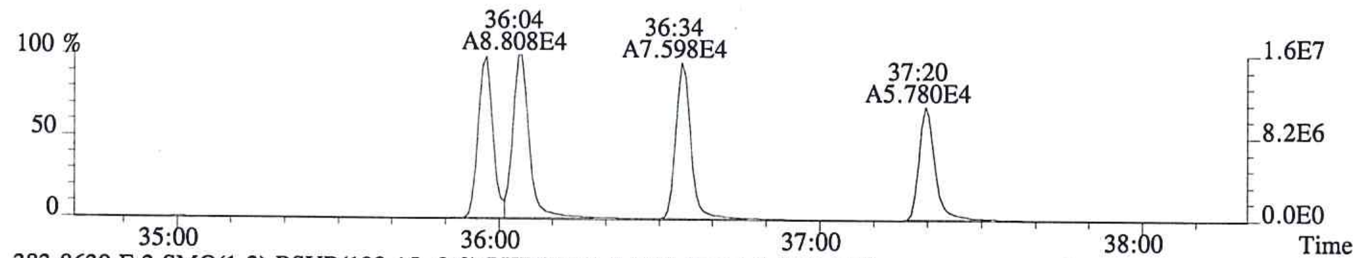


File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

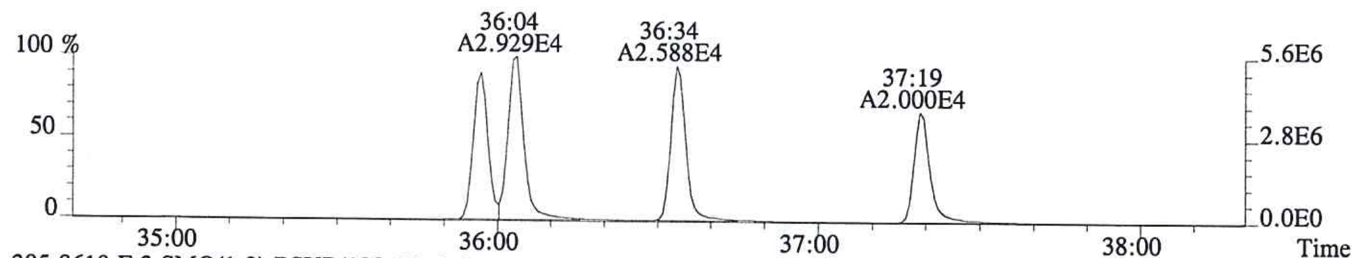
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



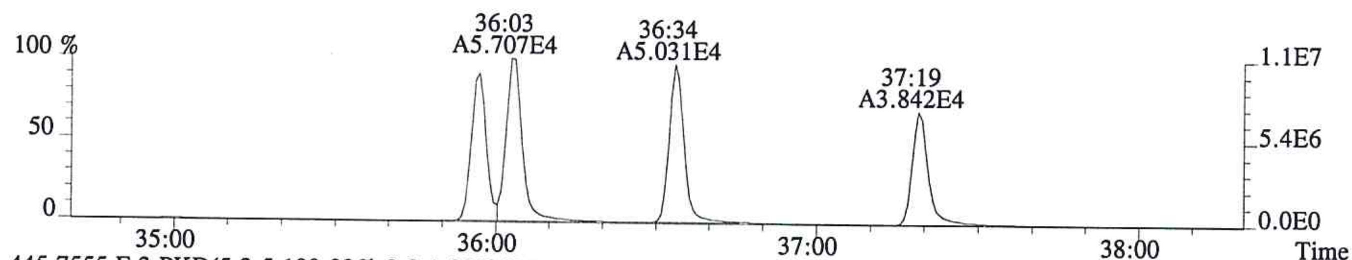
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



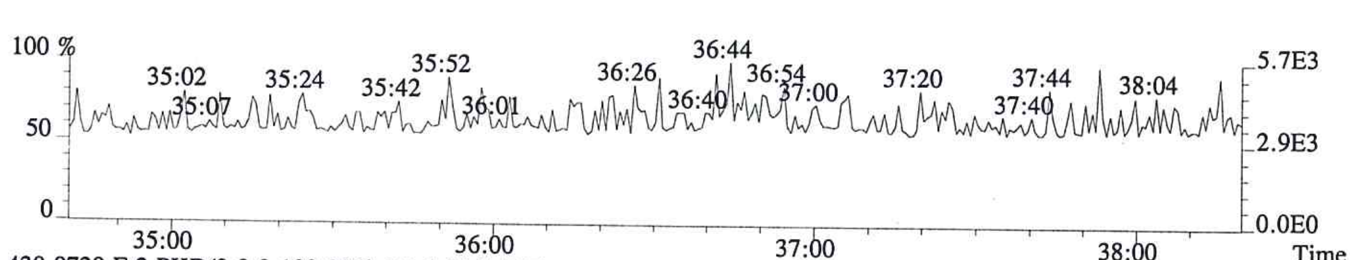
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



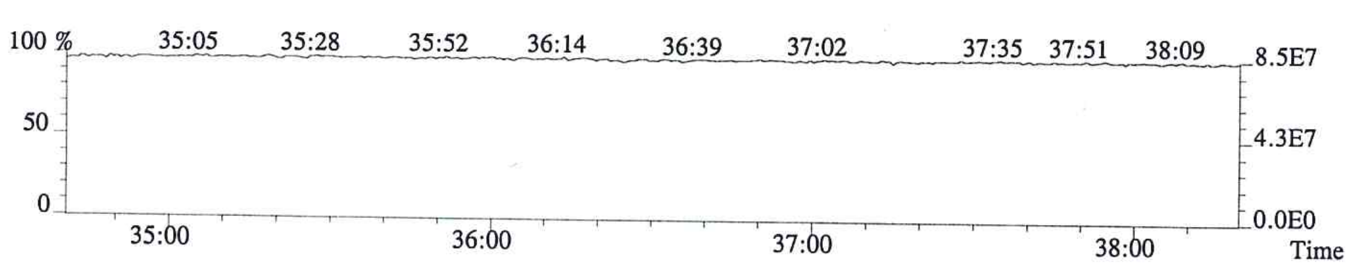
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2792.0,0.40%,F,T)



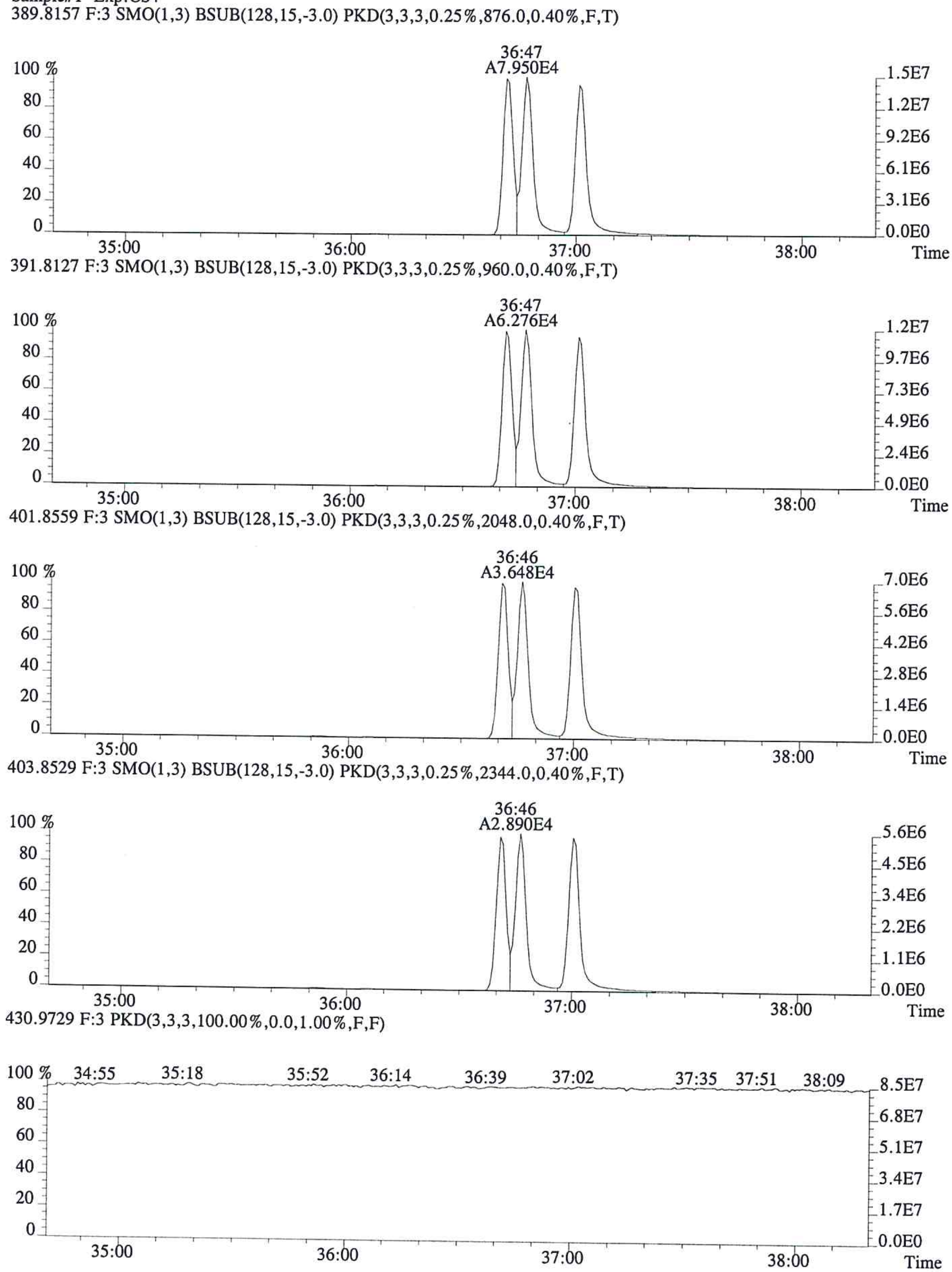
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	8.193e+04	1.059e+05	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	6.139e+05	3.954e+05	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	6.435e+04	8.269e+04	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.256e+04	5.313e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.522e+04	4.053e+04	1.61	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.412e+04	4.053e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.154e+04	4.185e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.844e+04	6.029e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	3.050e+04	3.908e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.234e+04	4.086e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.943e+04	3.156e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.476e+05				no	0.945

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Houston, TX 77099
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ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+07	1.26e+03	1.2e+04	1.91e+07	4.39e+03	4.3e+03
3	2,3,4,7,8-PeCDF	1.21e+08	1.23e+05	9.8e+02	7.74e+07	7.44e+04	1.0e+03
11	2,3,7,8-TCDD	1.25e+07	1.75e+03	7.1e+03	1.59e+07	1.15e+03	1.4e+04
18	13C-2,3,7,8-TCDF	7.51e+06	5.53e+03	1.4e+03	9.32e+06	2.96e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.41e+04	8.4e+02	7.38e+06	7.98e+03	9.3e+02
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.41e+04	8.8e+02	7.76e+06	7.98e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	4.21e+06	1.34e+03	3.1e+03	8.22e+06	2.01e+03	4.1e+03
26	13C-1,2,3,4-TCDF	8.06e+06	5.53e+03	1.5e+03	1.01e+07	2.96e+03	3.4e+03
27	13C-2,3,7,8-TCDD	5.76e+06	8.03e+03	7.2e+02	7.36e+06	3.50e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.04e+06	8.03e+03	7.5e+02	7.69e+06	3.50e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	7.59e+06	2.36e+03	3.2e+03	6.21e+06	1.56e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.82e+07	2.23e+03	1.3e+04			

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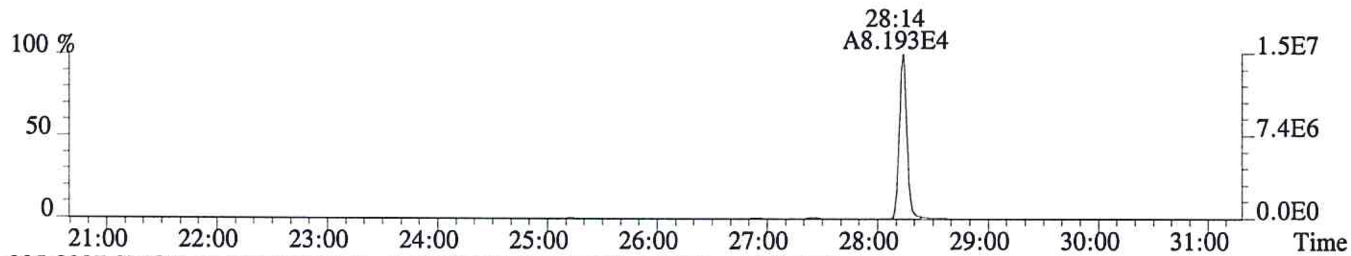
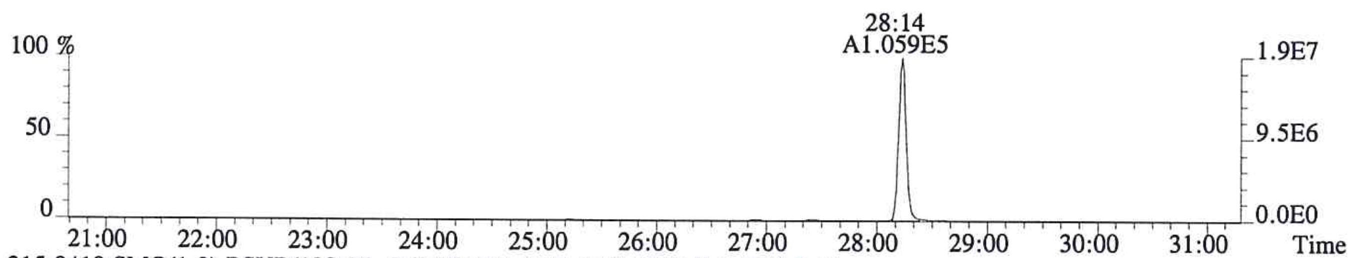
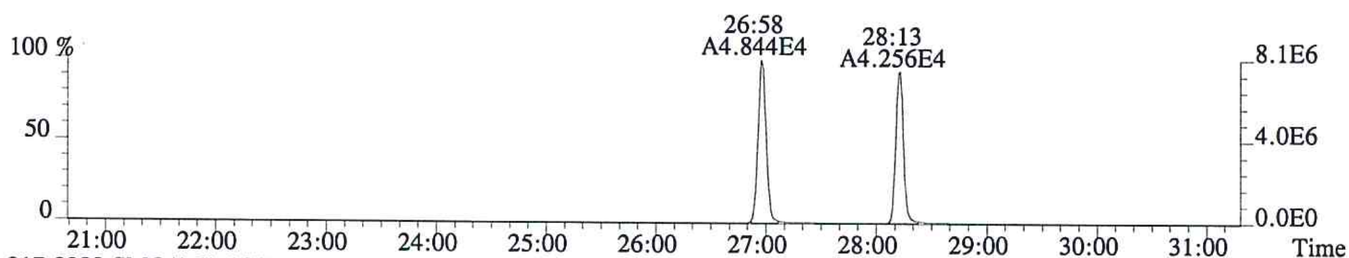
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



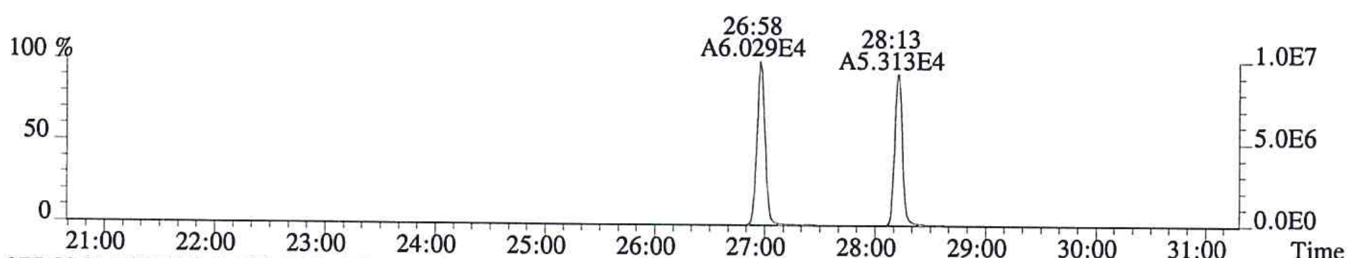
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



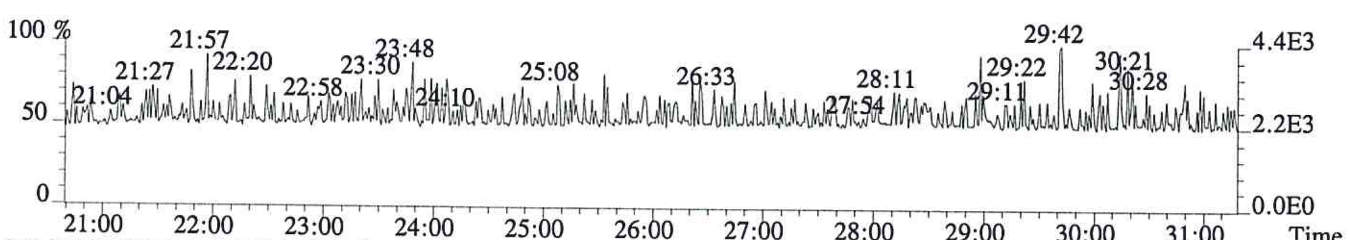
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5532.0,1.00%,F,T)



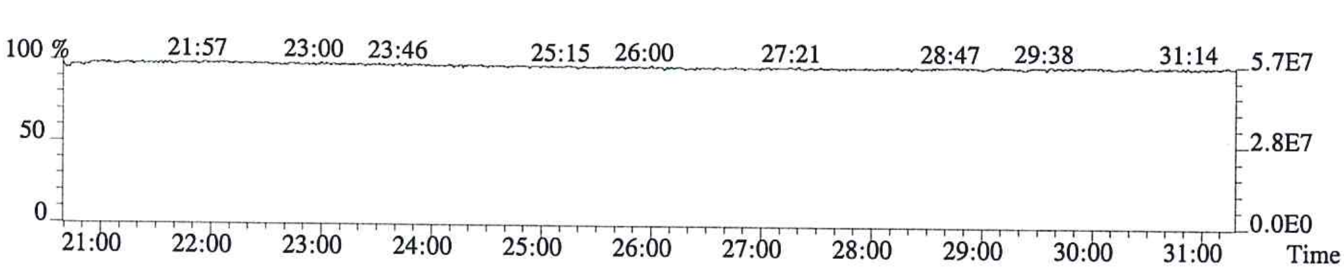
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



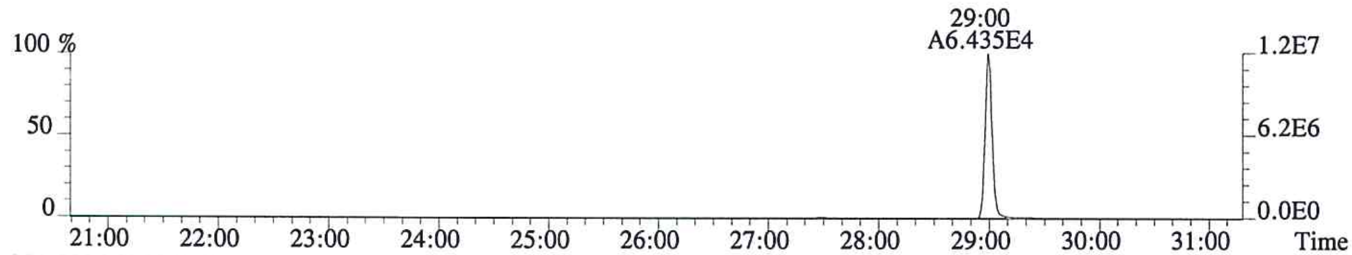
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



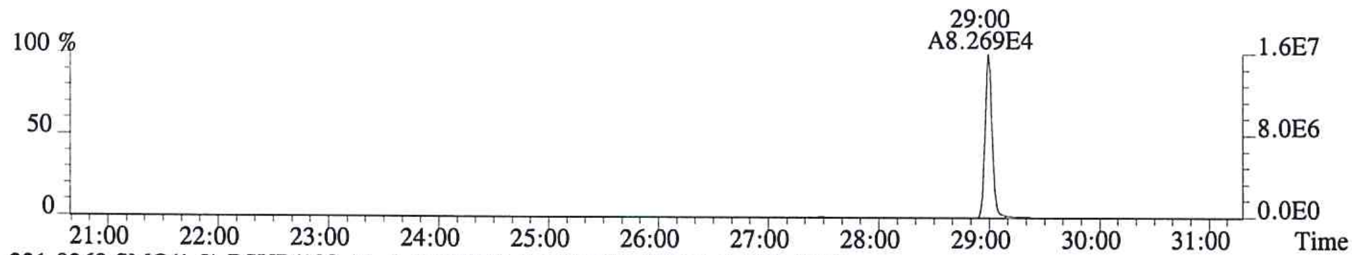
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



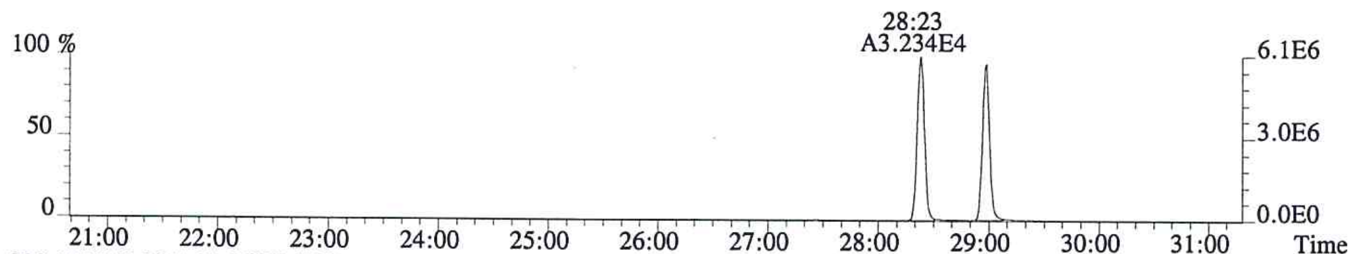
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



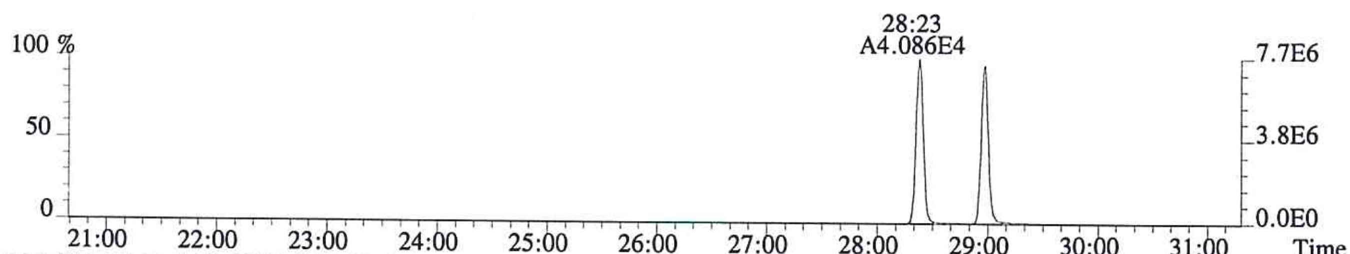
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



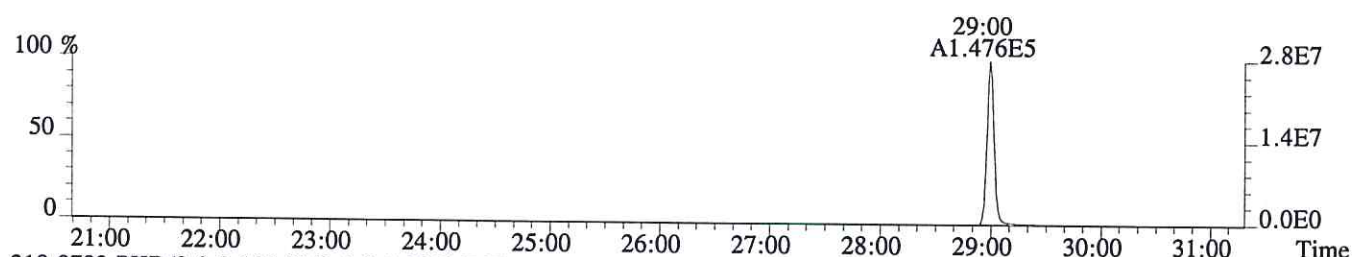
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8032.0,1.00%,F,T)



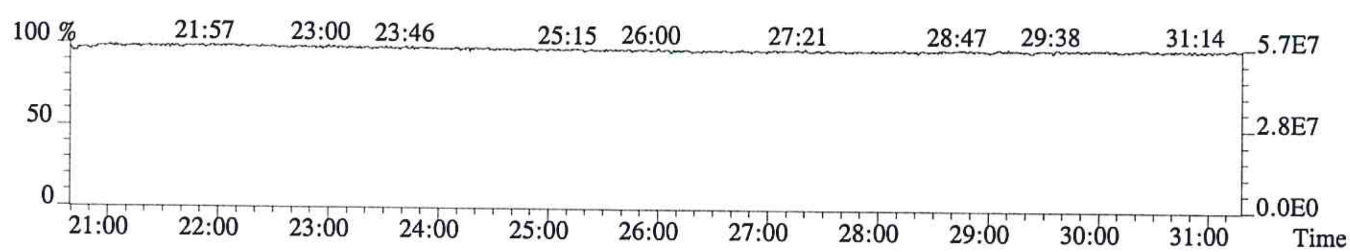
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



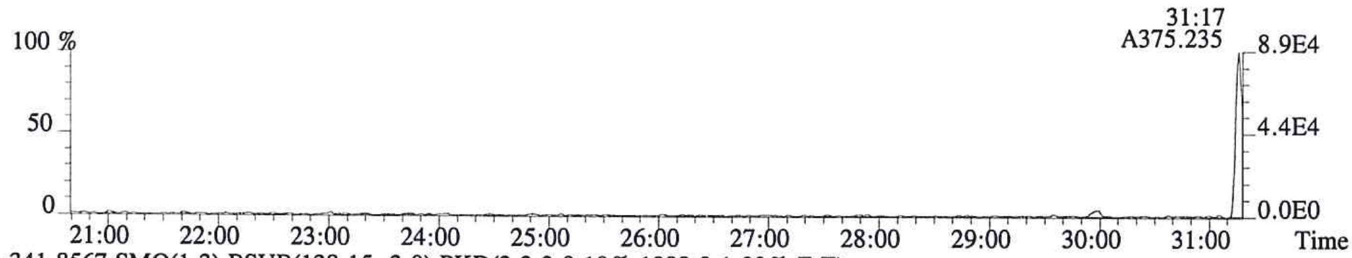
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



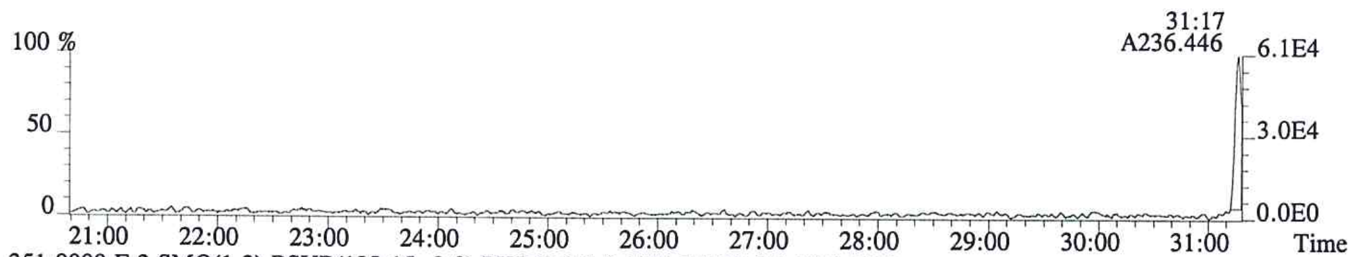
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



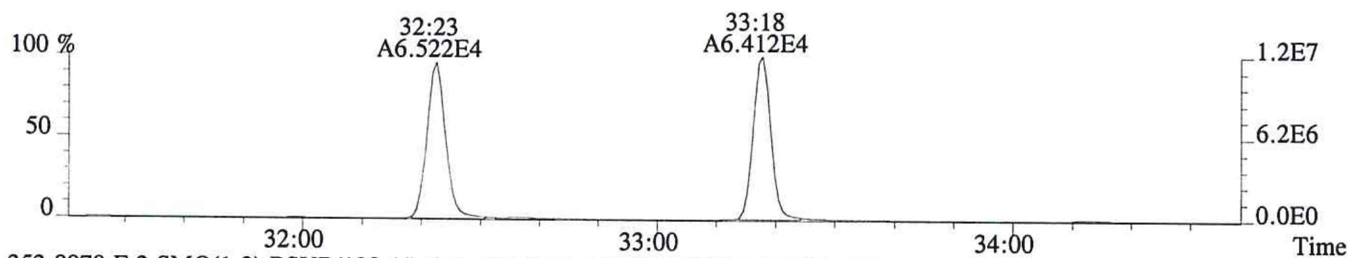
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



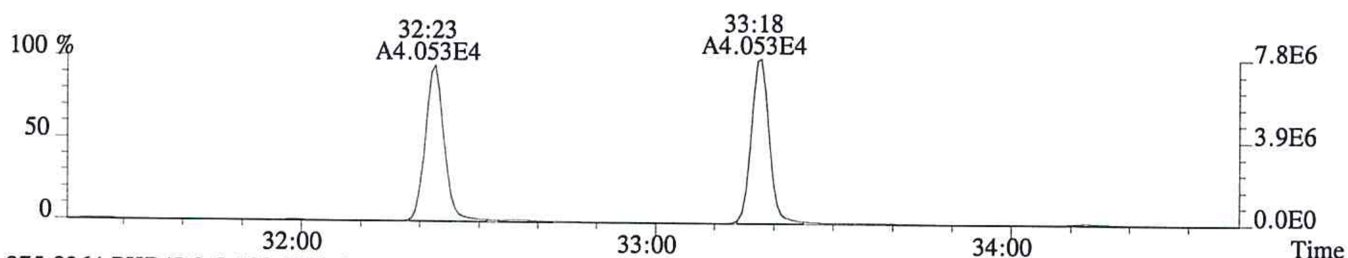
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



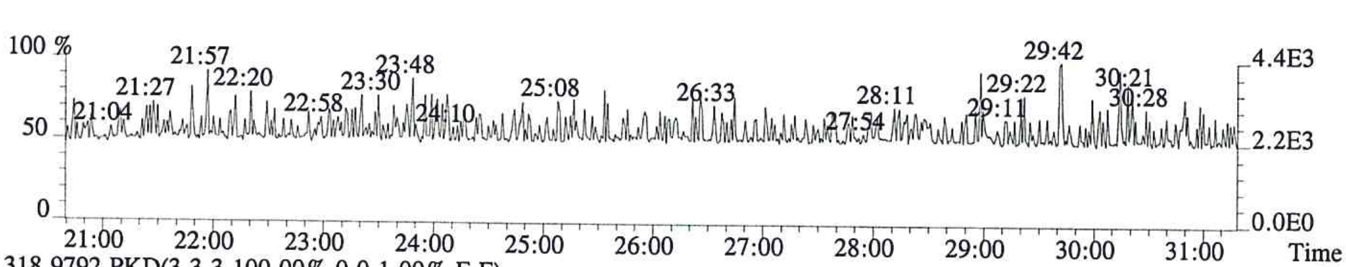
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



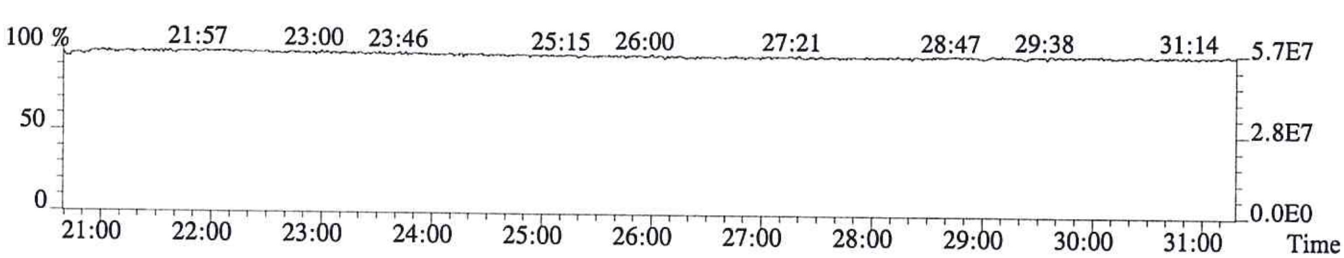
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



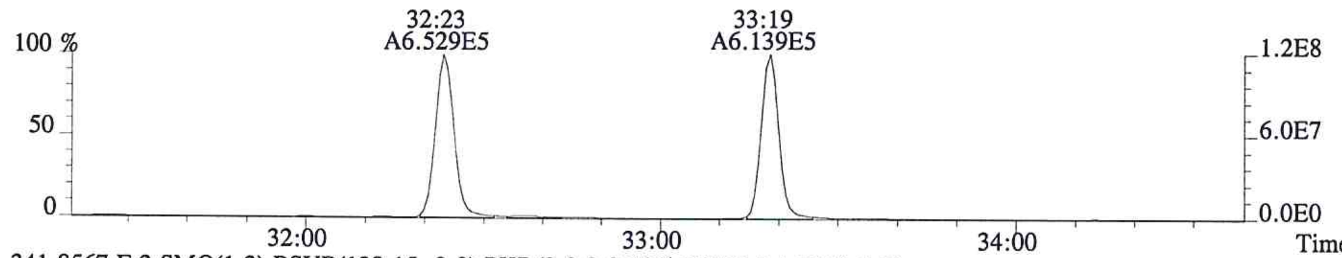
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



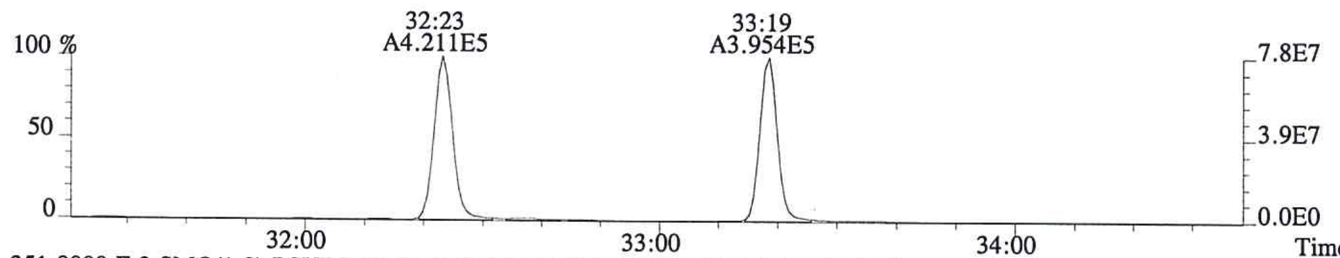
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



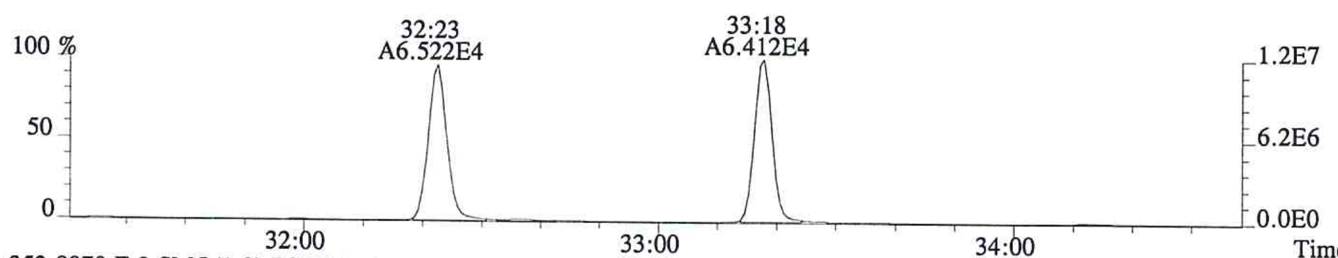
File:P603986 #1-298 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,122600.0,1.00%,F,T)



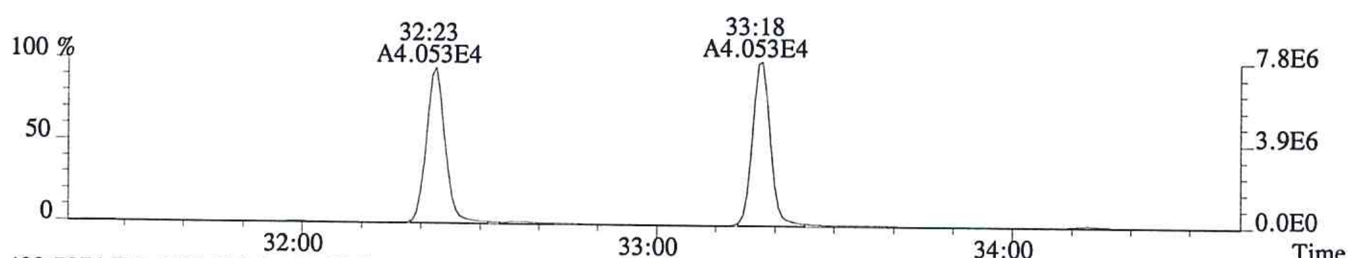
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,74376.0,1.00%,F,T)



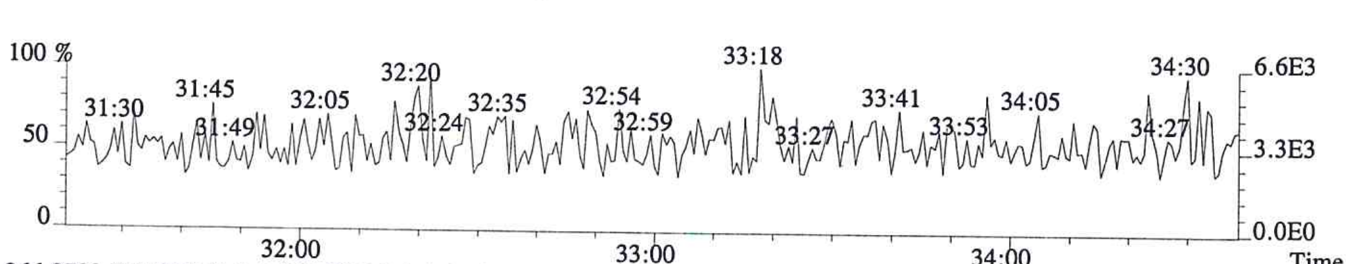
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



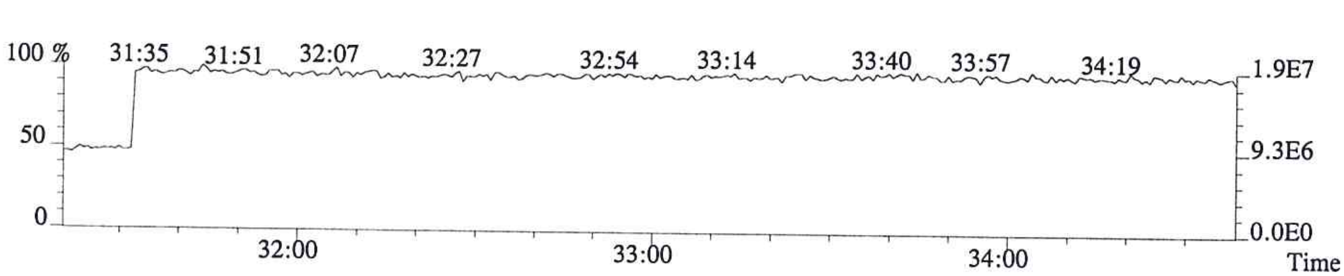
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



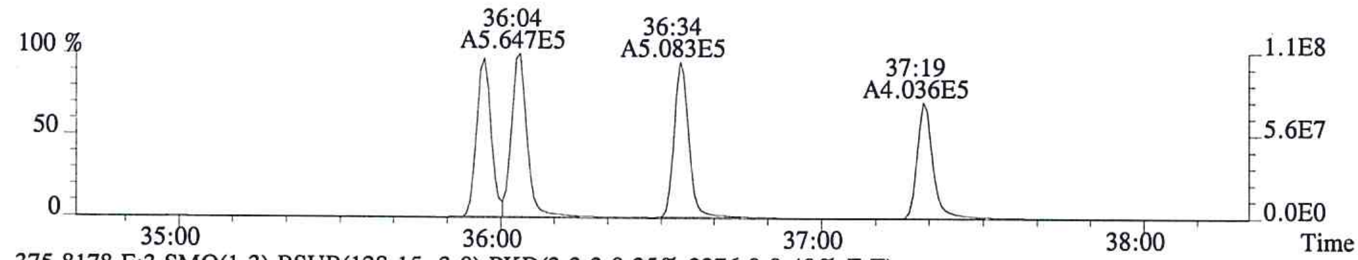
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



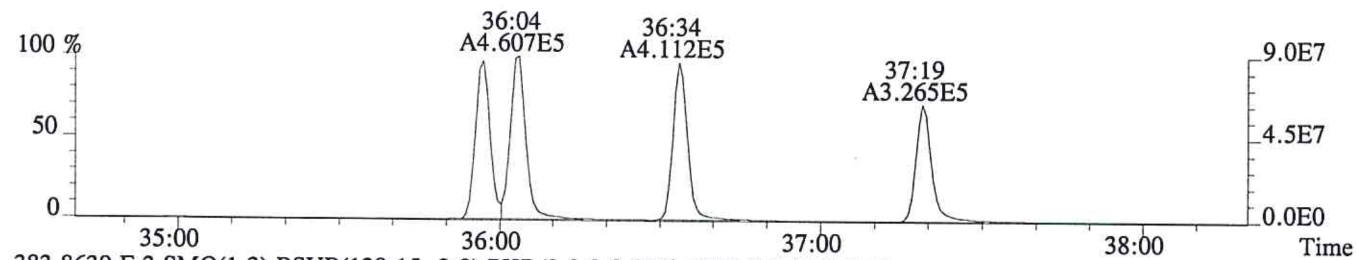
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



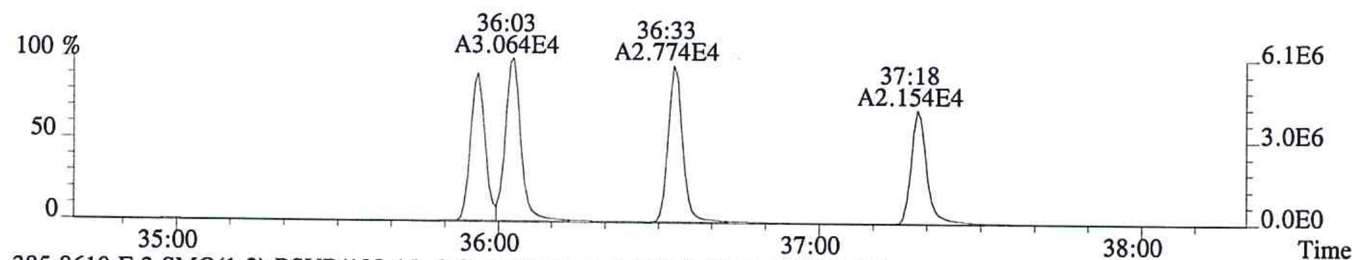
File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4228.0,0.40%,F,T)



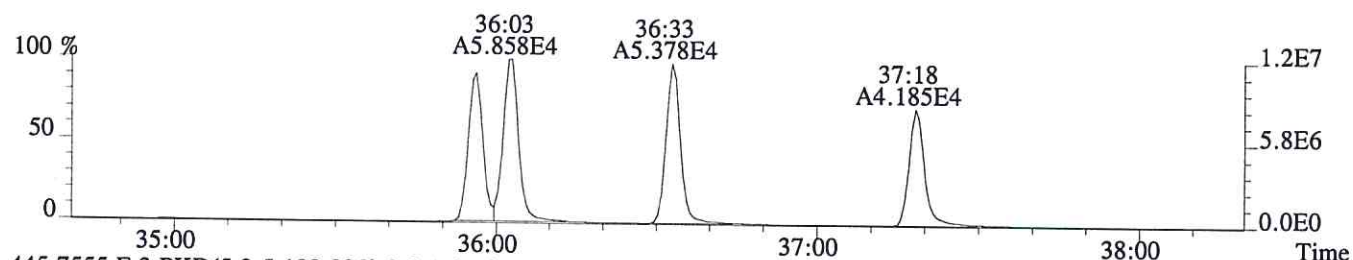
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



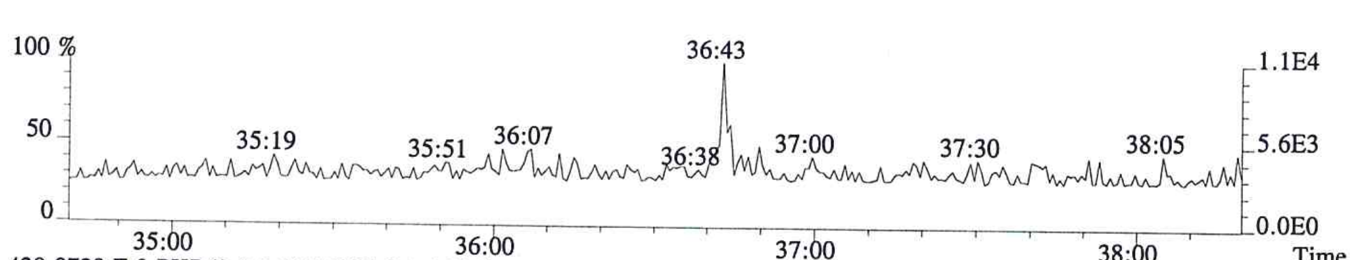
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



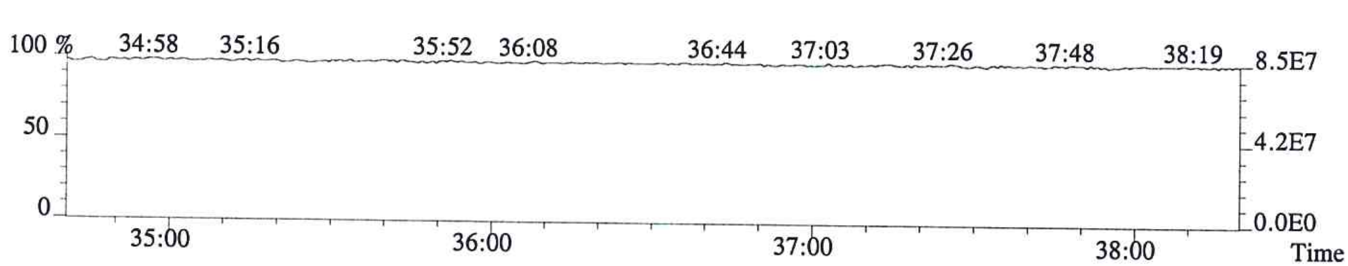
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2008.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

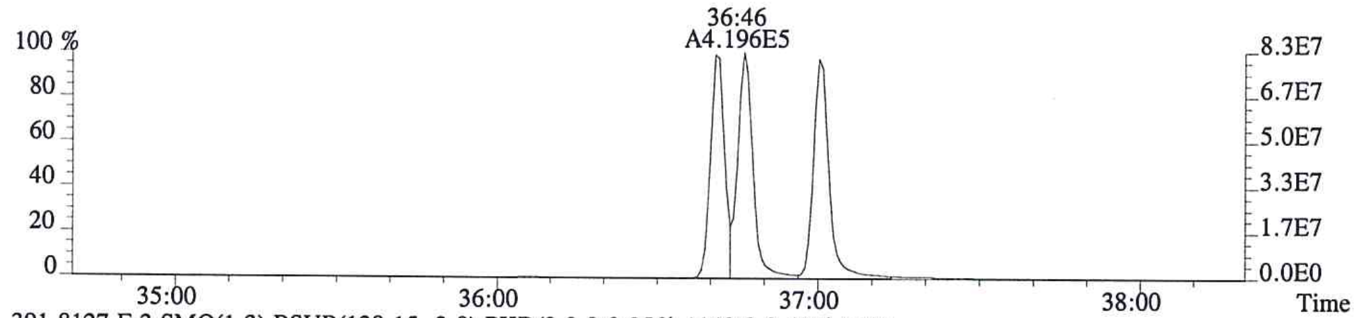


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

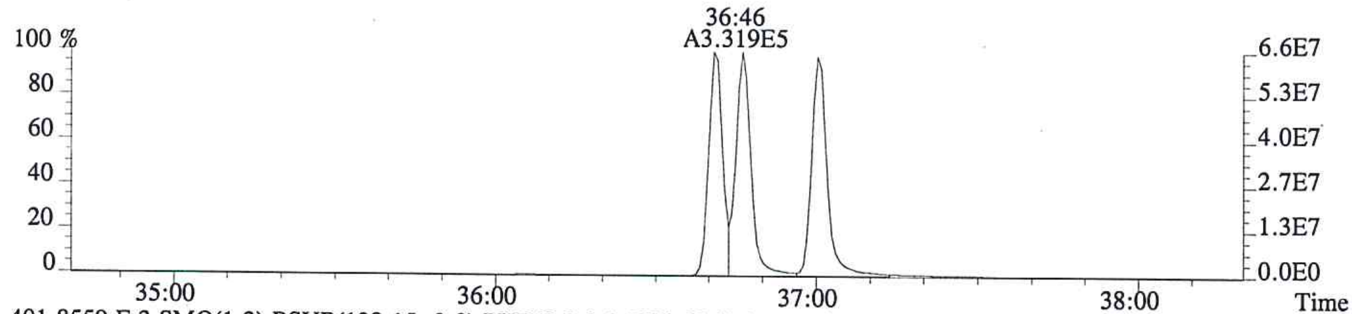


File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

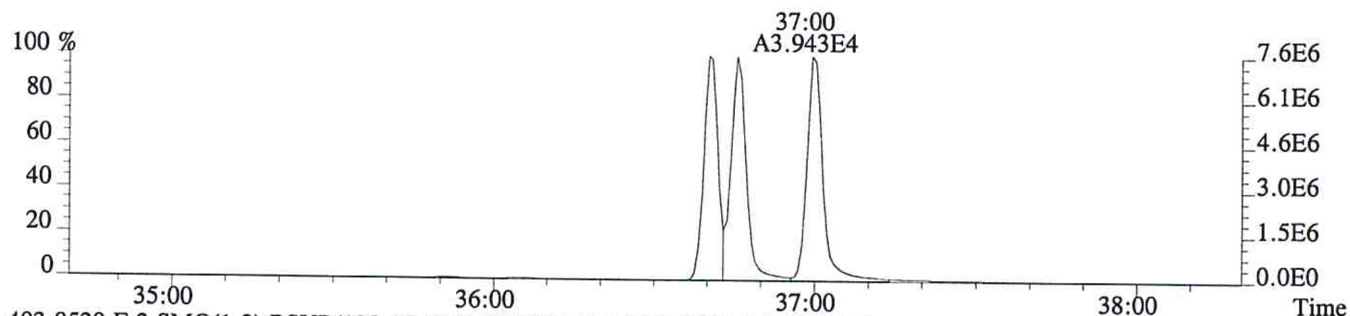
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



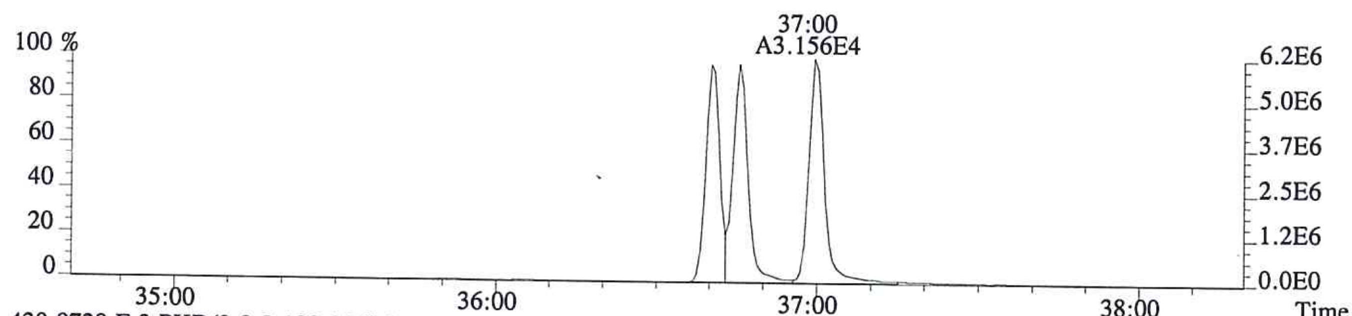
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



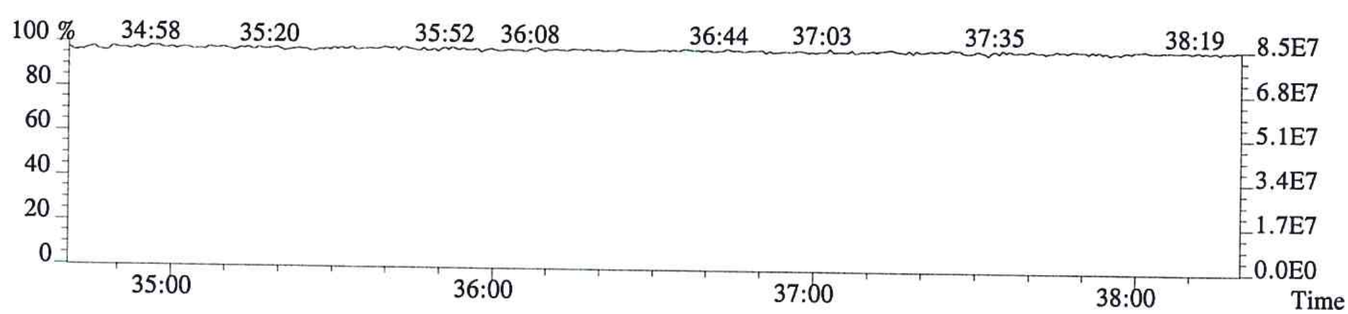
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08   GC Column ID: DB-5MSUI

VER Data Filename: P603988   Analysis Date: 25-JUN-16 Time: 15:21:10

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	4.8	3.9 - 6.45	-4.8
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	5.0	4.2 - 6.0	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	26.6	20.5 - 30.5	6.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603988 Analysis Date: 25-JUN-16 Time: 15:21:10

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	51	41 - 60.5	2.0
13C-1,2,3,4-TCDF	M/M+2	0.80	0.65-0.89	50	35.5-70	-0.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	50	35.5-70	0.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	51	38 - 65	1.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	48	38.5 - 65	-3.0
13C-1,2,3,7,8,9-HxCDF		0.52	0.43-0.59	53	37 - 67.5	6.3
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	-0.2

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
CS3 2ND SOURCE

Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 Sample ID: CS3 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	4.564e+03	5.813e+03	0.79	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	3.377e+04	2.175e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	3.506e+03	4.480e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.824e+04	6.074e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	7.291e+04	4.564e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.894e+04	4.348e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.364e+04	4.591e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.958e+04	6.170e+04	0.80	yes	yes	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	3.515e+04	4.490e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.742e+04	4.711e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.269e+04	3.208e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.970e+03				no	0.945

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Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3 2ND SOURCE

Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 LAB. ID: CS3 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.14e+05	1.32e+03	6.2e+02	1.04e+06	3.51e+03	3.0e+02
3	2,3,4,7,8-PeCDF	6.56e+06	1.10e+04	6.0e+02	4.19e+06	7.55e+03	5.6e+02
11	2,3,7,8-TCDD	6.55e+05	1.31e+03	5.0e+02	8.28e+05	1.41e+03	5.9e+02
18	13C-2,3,7,8-TCDF	8.37e+06	4.79e+03	1.7e+03	1.05e+07	2.74e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.26e+06	1.14e+04	7.3e+02
20	13C-2,3,4,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.28e+06	1.14e+04	7.3e+02
24	13C-1,2,3,7,8,9-HxCDF	4.54e+06	9.04e+02	5.0e+03	8.79e+06	3.13e+03	2.8e+03
26	13C-1,2,3,4-TCDF	8.22e+06	4.79e+03	1.7e+03	1.03e+07	2.74e+03	3.7e+03
27	13C-2,3,7,8-TCDD	6.41e+06	8.76e+03	7.3e+02	8.18e+06	3.96e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.95e+06	8.76e+03	7.9e+02	8.65e+06	3.96e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.12e+06	2.13e+03	3.8e+03	6.38e+06	1.43e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	1.49e+06	1.75e+03	8.5e+02			

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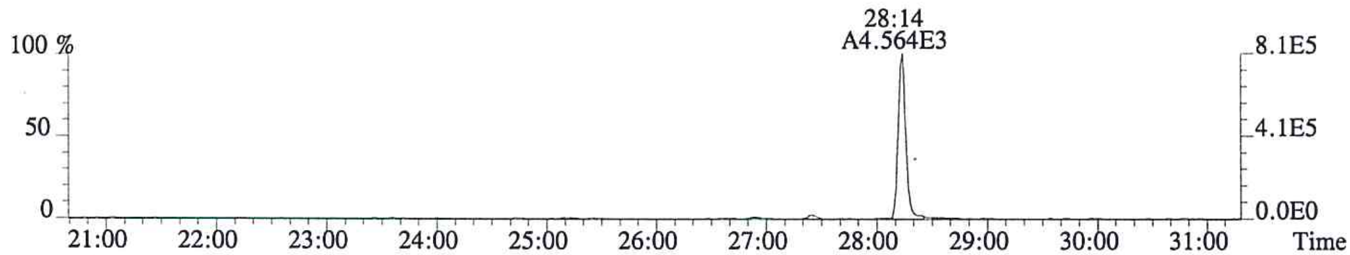
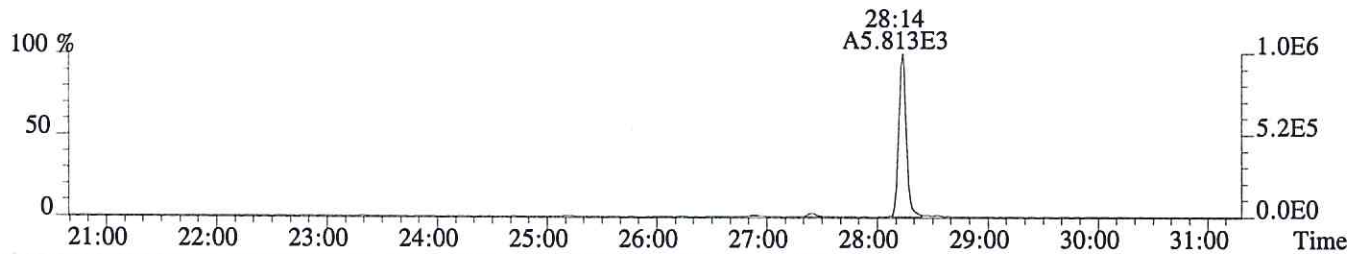
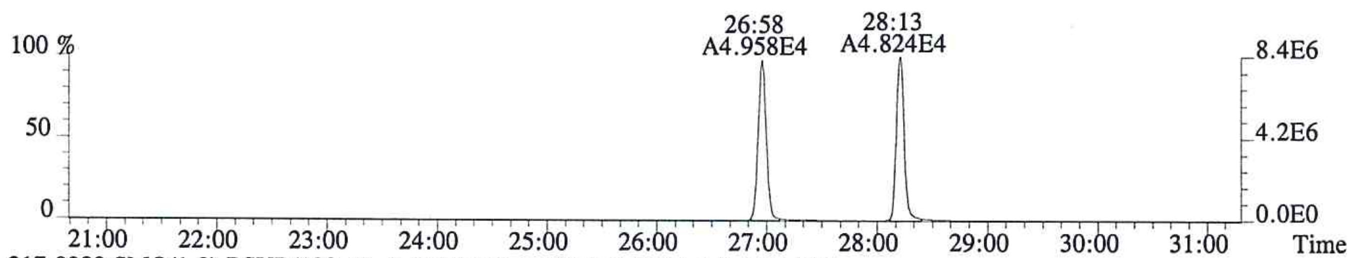
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



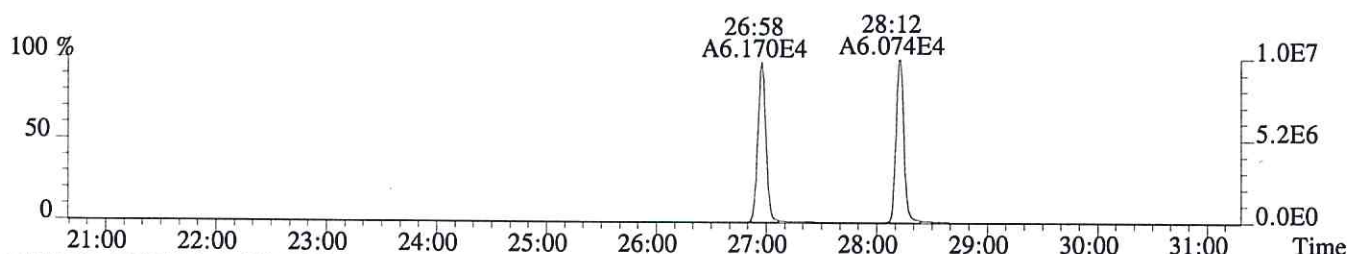
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3508.0,1.00%,F,T)



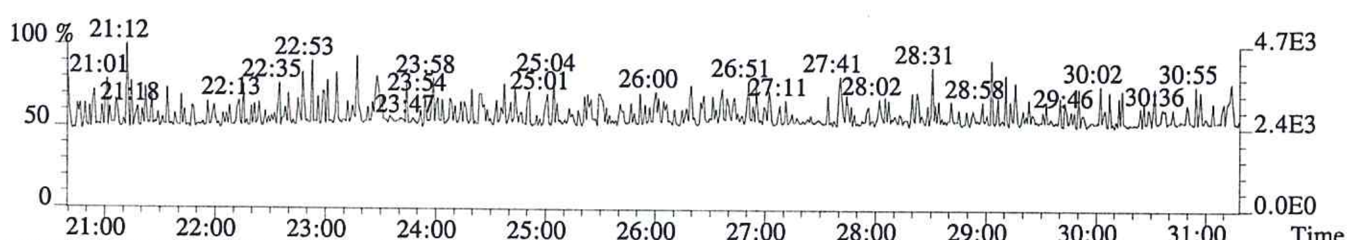
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4788.0,1.00%,F,T)



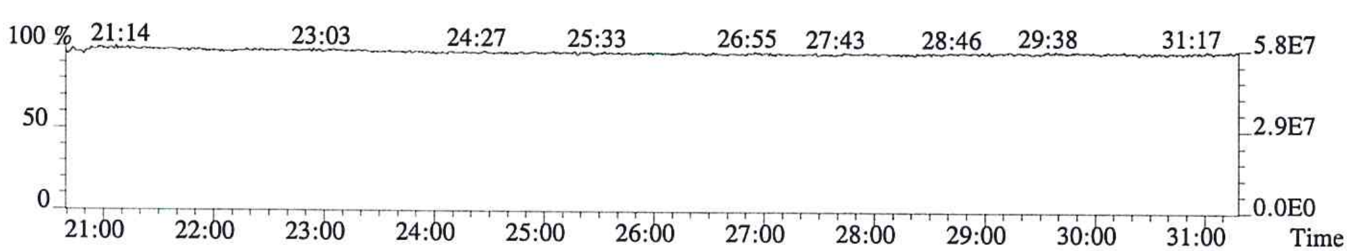
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



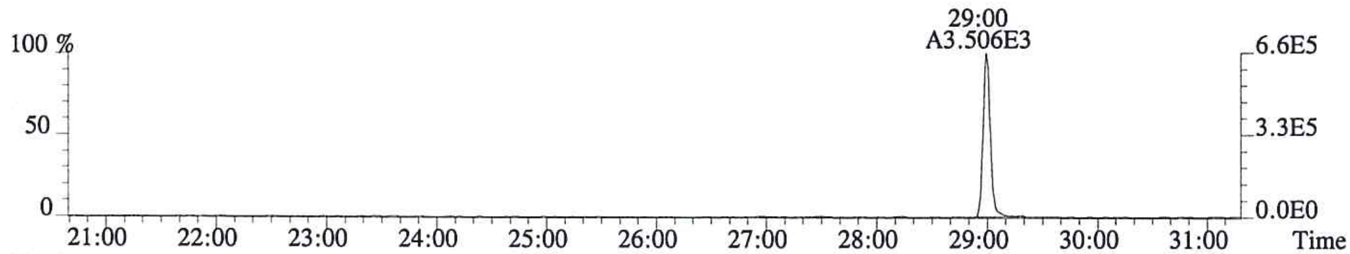
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



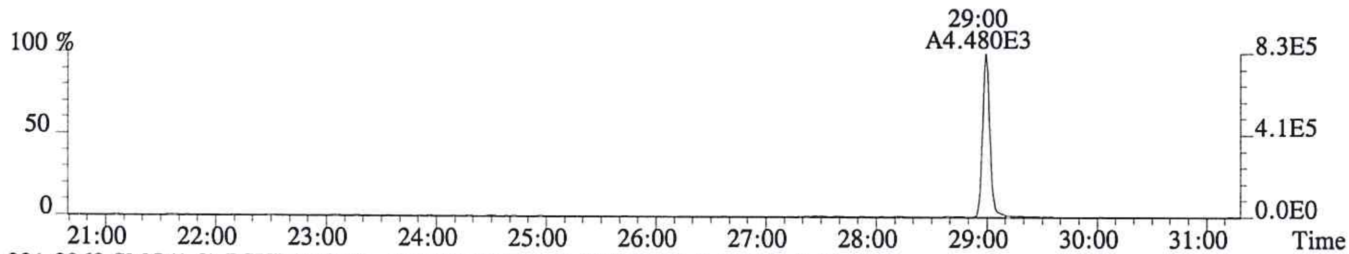
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



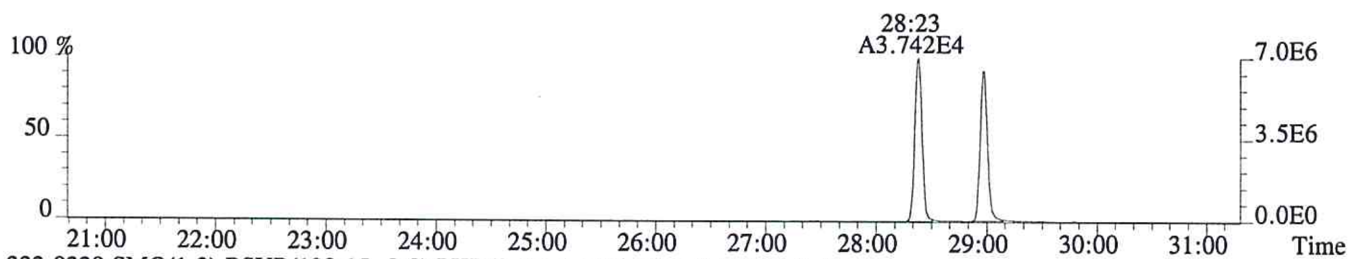
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



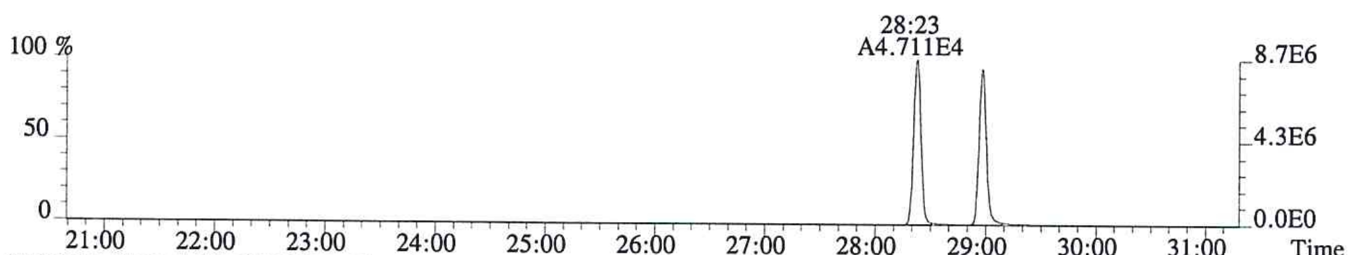
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



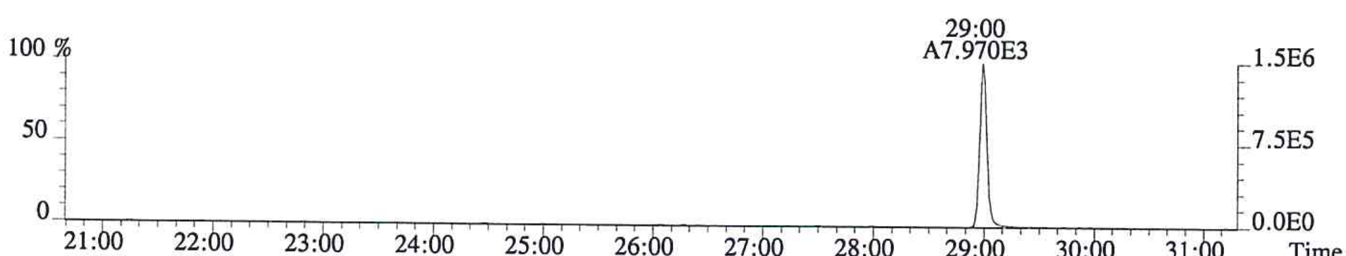
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8760.0,1.00%,F,T)



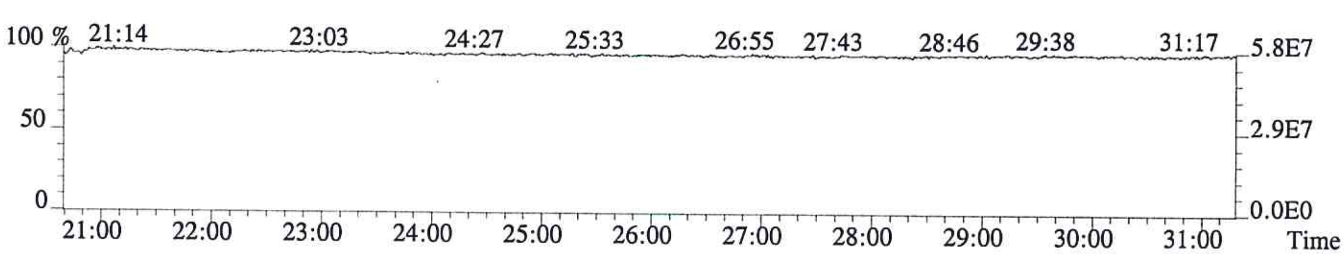
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3964.0,1.00%,F,T)



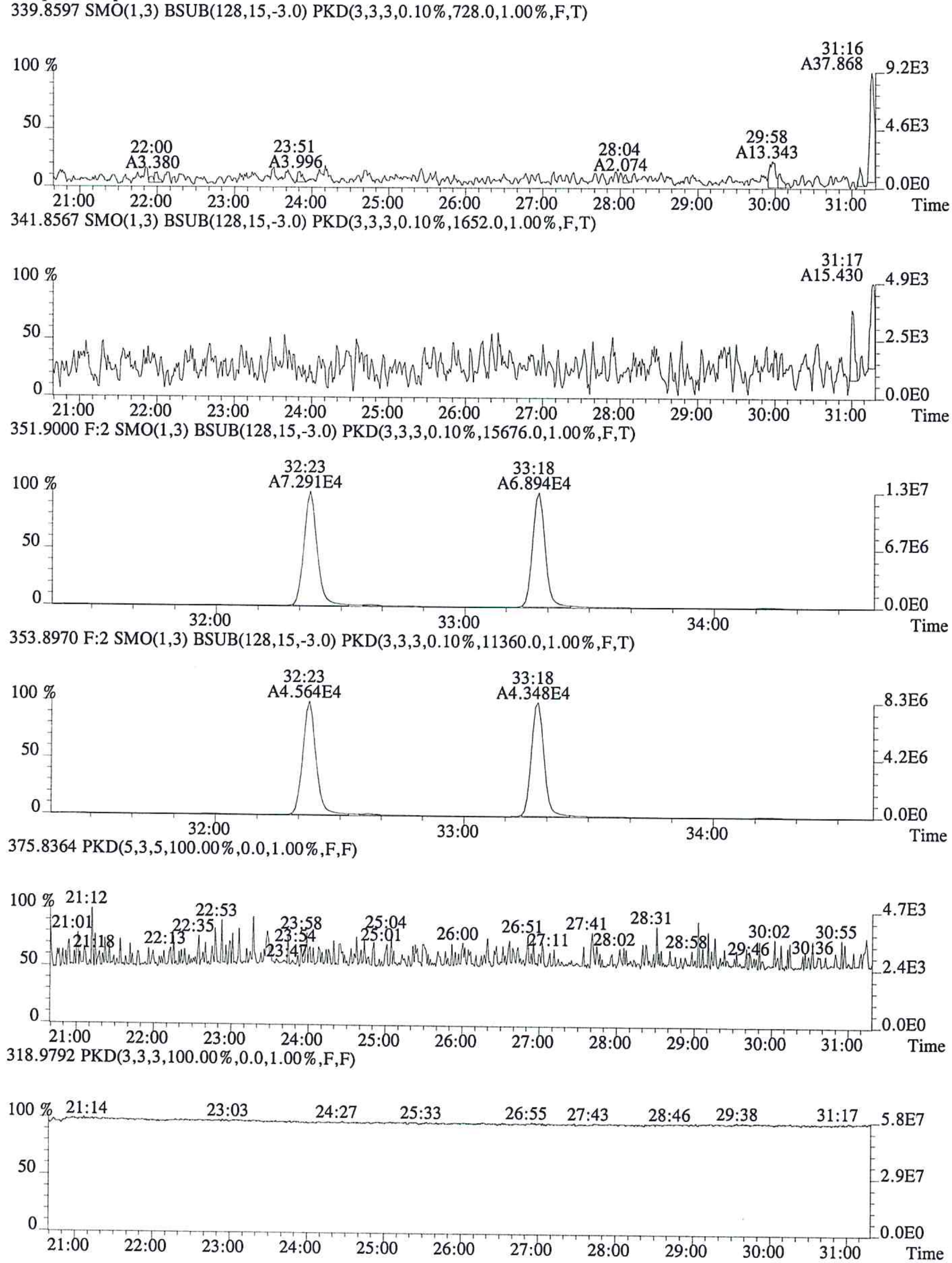
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

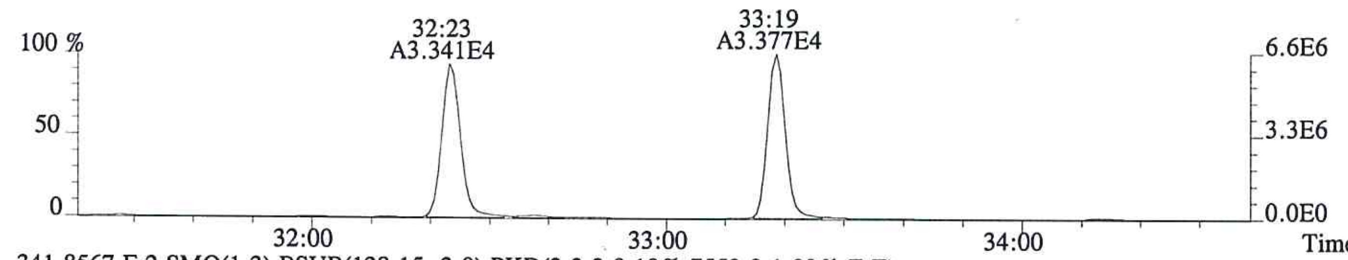


File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE

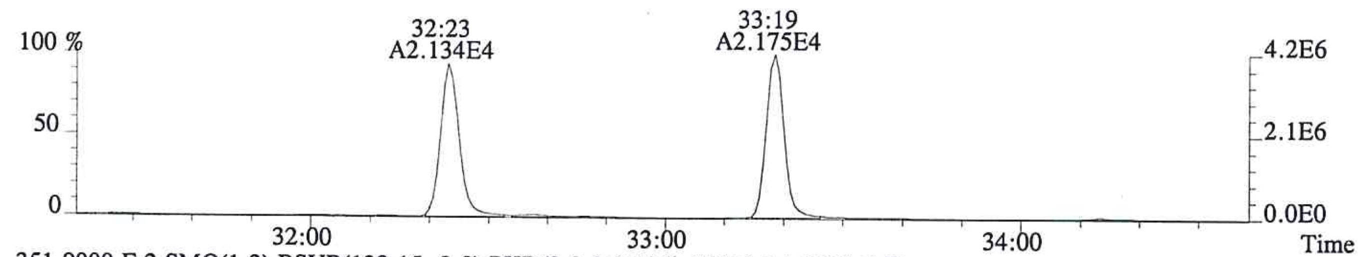


File:P603988 #1-298 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE

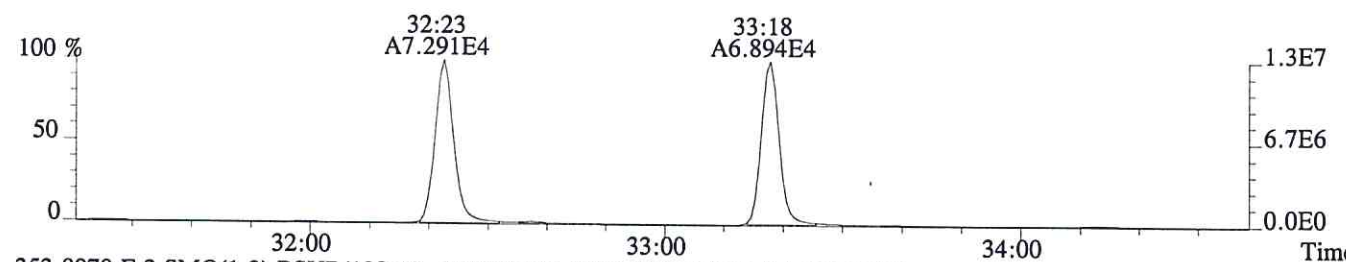
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10976.0,1.00%,F,T)



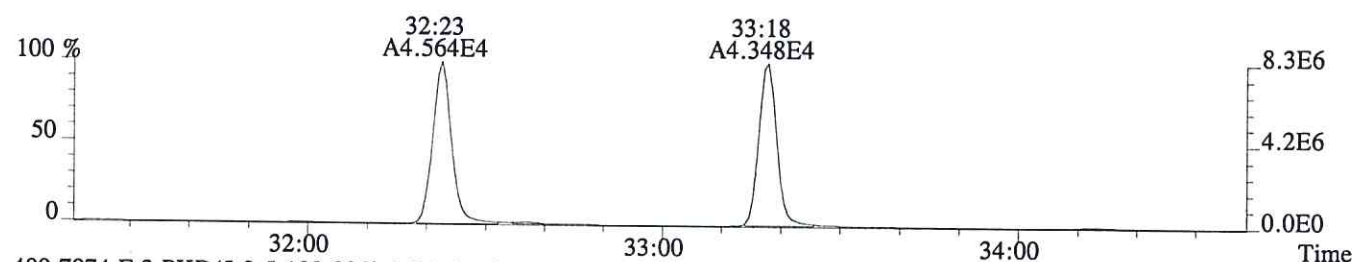
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7552.0,1.00%,F,T)



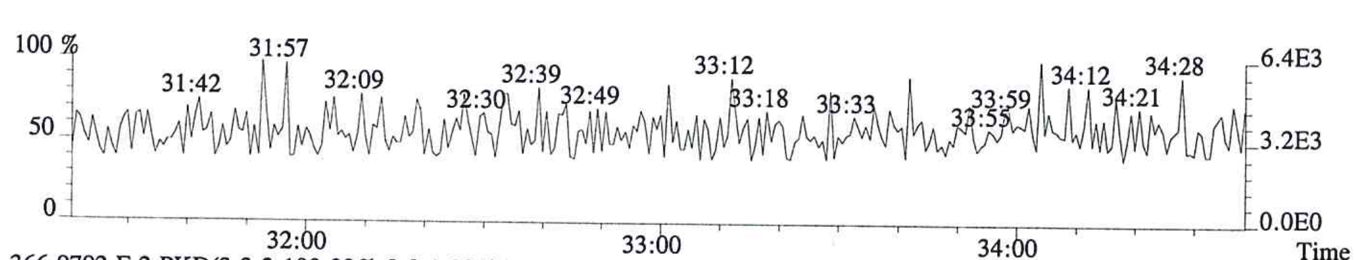
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15676.0,1.00%,F,T)



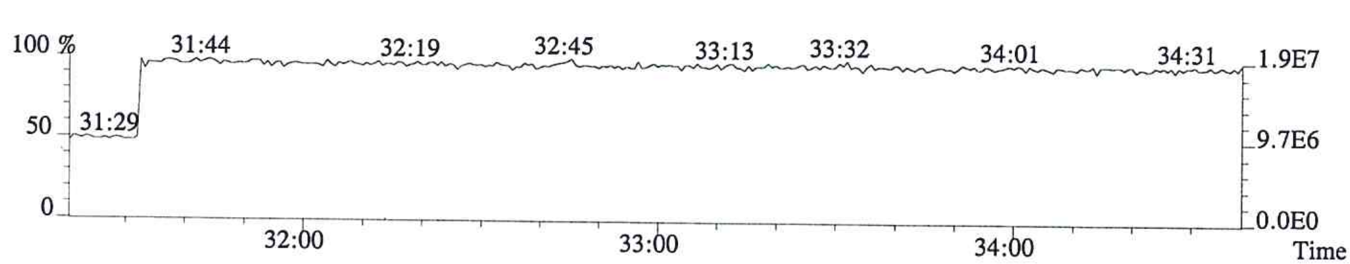
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11360.0,1.00%,F,T)



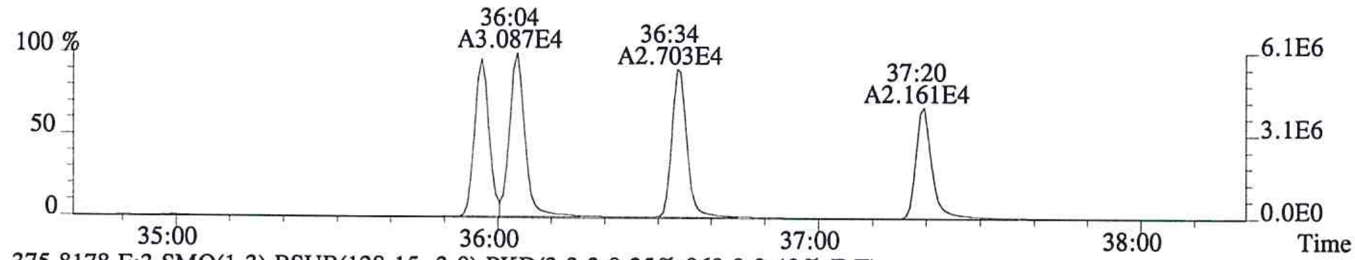
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



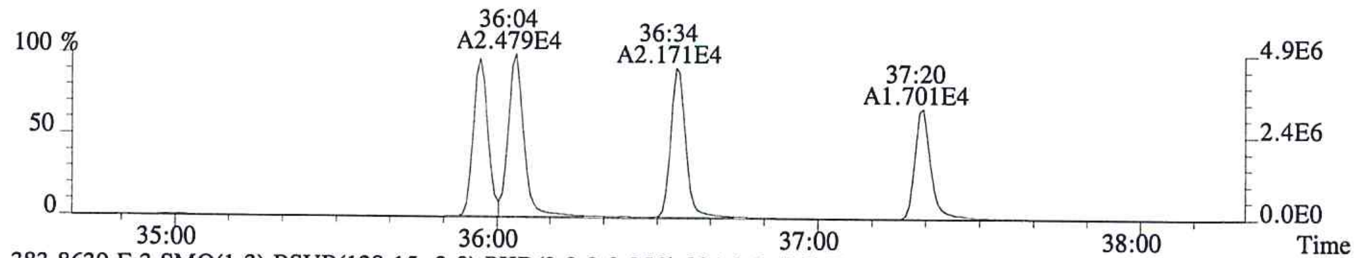
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



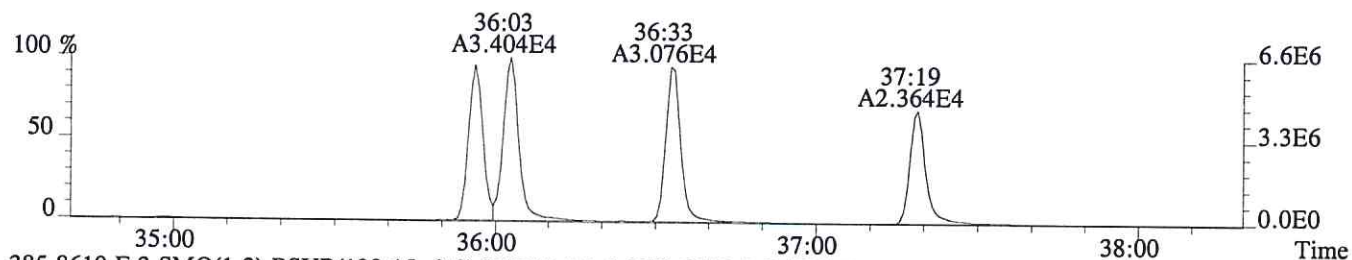
File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



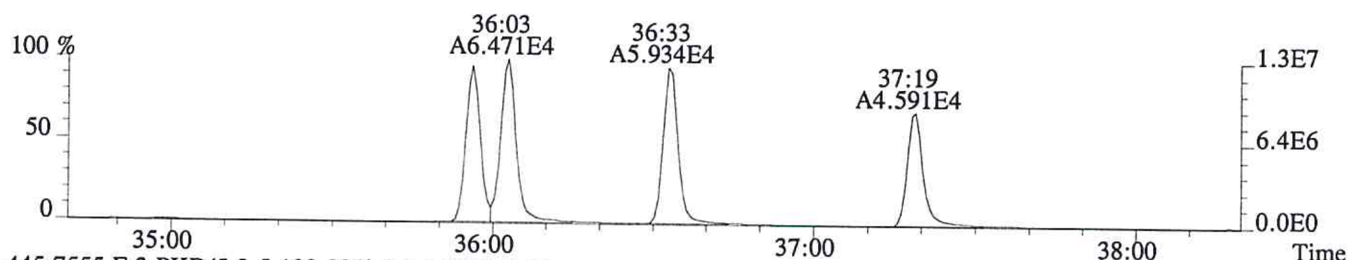
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



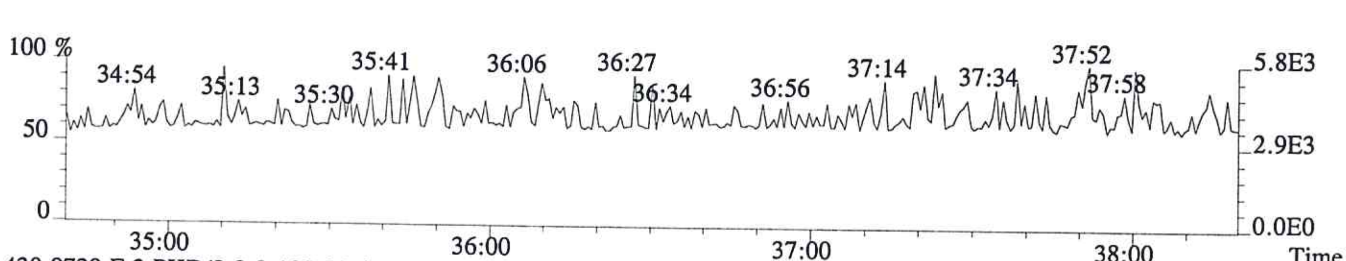
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



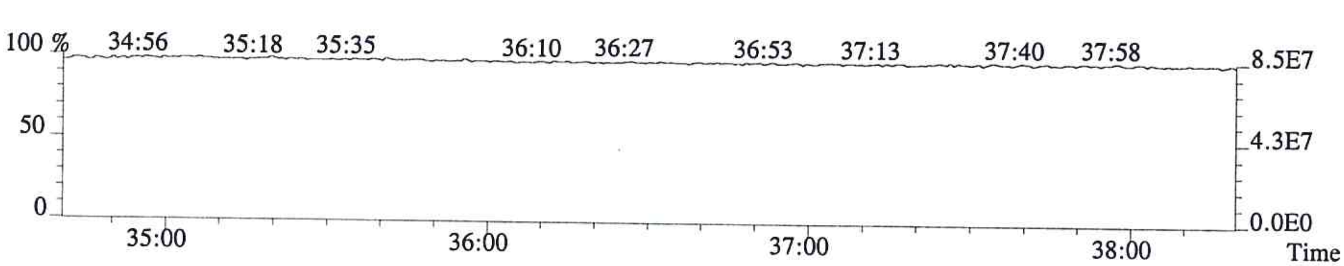
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



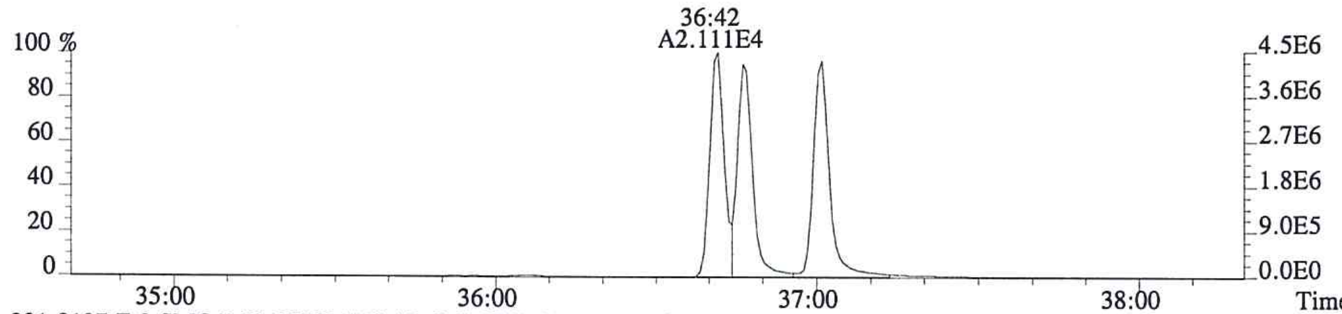
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



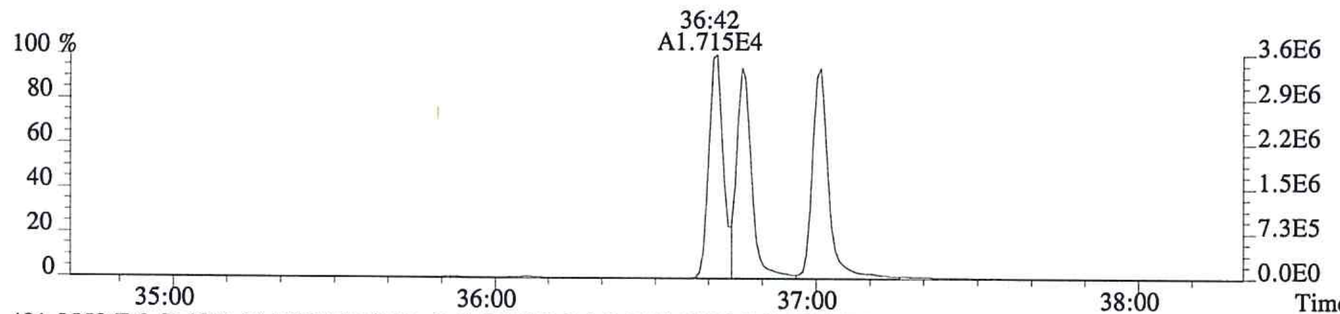
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



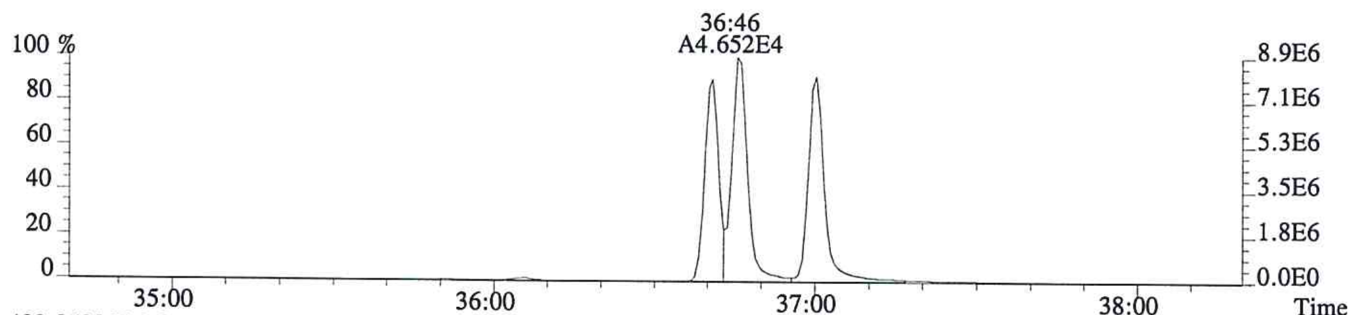
File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



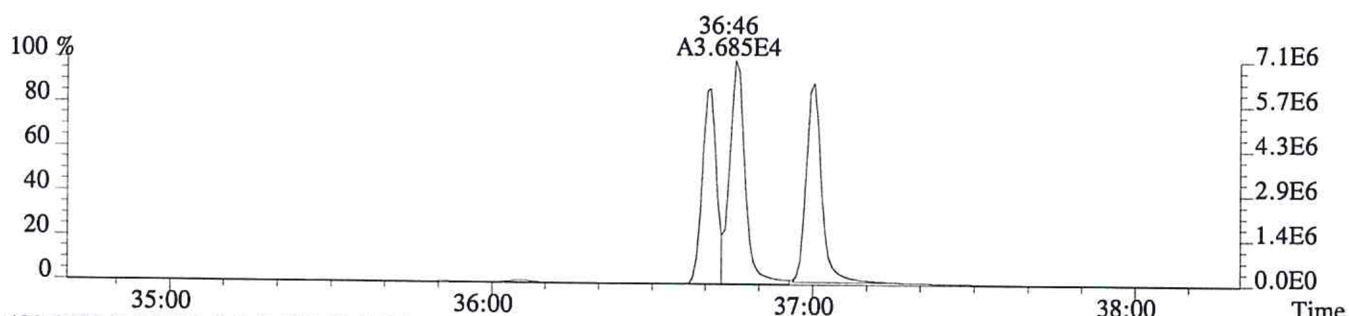
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



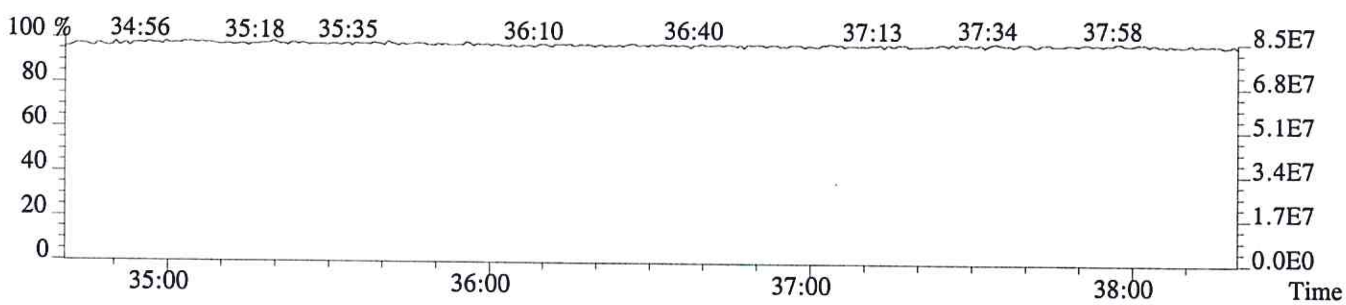
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



July 11, 2016 Service Request No: E1600326

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: San Jacinto

Dear Craig,

Enclosed is the amended report for samples submitted to our laboratory on April 8, 2016. For your reference, these analyses have been assigned our service request number E1600326.

The report was amended to remove the spike concentration and percent recovery for 13C-1,2,3,4 TCDF, 13C-2,3,4,7,8 PeCDF and 37Cl-2,3,7,8 TCDD in samples E1600326-004 and 005. In the original report, the spike concentration and percent recovery was reported. Please replace Final_E1600326ak with the report enclosed

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct number is 281-575-2279.

Respectfully submitted,

Arthi Kodur
Project Manager

ALS Environmental

For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com.

July 07, 2016

Service Request No:E1600326

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: San Jacinto

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory April 08, 2016
For your reference, these analyses have been assigned our service request number **E1600326.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

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PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	Integral Consulting, Incorporated	**Service Request No.:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Received:**	4/8/16
Sample Matrix:	SPME Fibers (Non-aqueous liquid)		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirteen SPME fibers were received for analysis at ALS Environmental – Houston HRMS on 4/8/16.

The samples were received at 17.6°C in good condition and are consistent with the accompanying chain of custody form. The client was contacted and allowed the continuation of analysis. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Custody seals were not present on the cooler upon arrival at the laboratory.

Extraction

The samples in batch EQ1600219 were spiked with the 1613B full list labeled standard. The samples in batch EQ1600222 were spiked with 8290 full list labeled standards. All samples were shaken for 2 minutes with 60 ml of hexane. The solvent was decanted to a new jar and rinsed. Samples were then spiked with M23 Alternate standard which only has 1,2,3,7,8,9 HxCDF.

Data Validation Notes and Discussion

Precision and Accuracy

EQ1600219: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

EQ1600220: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Integral Consulting, Incorporated **Service Request:** E1600326
Project: San Jacinto/150557-01.01

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1600326-001	03162016SJGW1	3/16/2016	0900
E1600326-002	04072016SJGW1	4/7/2016	0900
E1600326-003	04072016SJGW2	4/7/2016	0900
E1600326-004	04072016SJGW10	4/7/2016	0930
E1600326-005	04072016SJGW11	4/7/2016	0930
E1600326-006	04072016SJGW12	4/7/2016	0930
E1600326-007	04072016SJGW13	4/7/2016	0930
E1600326-008	04072016SJGW14	4/7/2016	0930
E1600326-009	04072016SJGW15	4/7/2016	0930
E1600326-010	04072016SJGW16	4/7/2016	1000
E1600326-011	04072016SJGW17	4/7/2016	1000
E1600326-012	04072016SJGW18	4/7/2016	1000

Service Request Summary

Folder #: **E1600326**
Client Name: Integral Consulting, Incorporated
Project Name: San Jacinto
Project Number: 150557-01.01

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA

Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: AKODUR
Date Received: 04/08/16
Internal Due Date: 5/11/2016
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N
P.O. Number:
EDD: No EDD Specified

12 -N/A N/A
Location: E-Disposed, EHRMS-WIC 3B
Pressure Gas:

				HOUSTON
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B
E1600326-001	03162016SJGW1	NonAq Liquid	03/16/16 0900	**IV**
E1600326-002	04072016SJGW1	NonAq Liquid	04/07/16 0900	**IV**
E1600326-003	04072016SJGW2	NonAq Liquid	04/07/16 0900	**IV**
E1600326-004	04072016SJGW10	NonAq Liquid	04/07/16 0930	**IV**
E1600326-005	04072016SJGW11	NonAq Liquid	04/07/16 0930	**IV**
E1600326-006	04072016SJGW12	NonAq Liquid	04/07/16 0930	**IV**
E1600326-007	04072016SJGW13	NonAq Liquid	04/07/16 0930	**IV**
E1600326-008	04072016SJGW14	NonAq Liquid	04/07/16 0930	**IV**
E1600326-009	04072016SJGW15	NonAq Liquid	04/07/16 0930	**IV**
E1600326-010	04072016SJGW16	NonAq Liquid	04/07/16 1000	**IV**
E1600326-011	04072016SJGW17	NonAq Liquid	04/07/16 1000	**IV**
E1600326-012	04072016SJGW18	NonAq Liquid	04/07/16 1000	**IV**

Service Request Summary

Folder #:	**E1600326**	Project Chemist:	Arthi Kodur	12 -N/A N/A	
Client Name:	Integral Consulting, Incorporated	Originating Lab:	HOUSTON	**Location:**	E-Disposed, EHRMS-WIC 3B
Project Name:	San Jacinto	Logged By:	AKODUR	**Pressure Gas:**	
Project Number:	150557-01.01	Date Received:	04/08/16		
		Internal Due Date:	5/11/2016		
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA	QAP:	LAB QAP		
		Qualifier Set:	HRMS Qualifier Set		
		Formset:	Lab Standard		
		Merged?:	N		
Phone Number:	360-705-3534	Report to MDL?:	N		
Cell Number:		P.O. Number:			
Fax Number:		EDD:	No EDD Specified		
E-mail:	chutchings@integral-corp.com				

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	3	E1600326-010-013 on hold (ak 4/20/16)
Semivoa GCMS	Dioxins Furans/1613B	9	E1600326-001-003: native TCDD/TCDF,23478 PeCDF (ak 4/20/16) do not extract till curve is ready, talk to Arthi before starting anything (ak 5/2/16)

Superset Summary

Service Request: E1600326 **SuperSet Reference:** 16-0000383419 rev 00

Analytical Method: **1613B**

Calibrations: 06/25/16

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P603995	P603991	P603993	E1600326-001
P603996	P603991	P603993	E1600326-002
P603997	P603991	P603993	E1600326-003
P603998	P603991	P604007	E1600326-004
P603999	P603991	P604007	E1600326-005
P604000	P603991	P604007	E1600326-006
P604001	P603991	P604007	E1600326-007
P604010	P604006	P604007	E1600326-008
P604011	P604006	P604007	E1600326-009
P603993	P603991	P603993	EQ1600219-01
P604002	P603991	P603993	EQ1600219-02
P604003	P603991	P603993	EQ1600219-03
P604007	P604006	P604007	EQ1600220-01
P604016	P604006	P604007	EQ1600220-02
P604017	P604006	P604007	EQ1600220-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	10/6/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
Minnesota Department of Health	840911	12/31/2016
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Tennessee Department of Environment and Concervation	04016	6/30/2017
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2016
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	8/31/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1600326 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/01/16	Jc	001-007

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/05/16	LKL	001-007

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1600326 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/07/16	Jc	008, 009

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/07/16	LKC	008, 009

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Chain of Custody Record & Laboratory Analysis Request

ANCHOR QEA

2/2

Laboratory Number:

Date: 4/7/2016

Project Name: San Jacinto

Project Number: 150557-01.01

Project Manager: David Keith

Phone Number: 503-972-5001 (Masa Kanematsu

Shipment Method: Anchor QEA)

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	2378 TCDD	2378 TCDF	23478 PeCDF		37Cl - 2378TCDD	13C - 1234TCDF	13C - 23478 PeCDF	Comments/Preservation
1	03162016 SJGW 1	03/16/2016 9:00	Hexane	1	↓	↓	↓					40mL Hexane rinsate of PDMS fibers
2	04072016 SJGW 1	04/07/2016 9:00	Hexane	1	↓	↓	↓					40mL Hexane rinsate of Sampler assembly
3	04072016 SJGW 2	04/07/2016 9:00	Hexane	1	↓	↓	↓					40mL Hexane rinsate of GW Sampler assembly
4												
5	04072016 SJGW 10	04/07/2016 9:30	SPME	1	↓	↓	↓		↓	↓	↓	PDMS fiber for SPME blank
6	04072016 SJGW 11	04/07/2016 9:30	↓	1	↓	↓	↓		↓	↓	↓	PDMS fiber to determine C_0 of PRCs
7	04072016 SJGW 12	04/07/2016 9:30	↓	1	↓	↓	↓		↓	↓	↓	PDMS fiber to determine C_0 of PRCs
8	04072016 SJGW 13	04/07/2016 9:30	↓	1	↓	↓	↓		↓	↓	↓	PDMS fiber to determine C_0 of PRCs
9	04072016 SJGW 14	04/07/2016 9:30	↓	1	↓	↓	↓		↓	↓	↓	PDMS fiber to determine C_0 of PRCs
10	04072016 SJGW 15	04/07/2016 9:30	↓	1	↓	↓	↓		↓	↓	↓	PDMS fiber to determine C_0 of PRCs
11	04072016 SJGW 16	04/07/2016 10:00	↓	1								PDMS fiber for Lab QC (150.0cm)
12	04072016 SJGW 17	04/07/2016 10:00	↓	1								PDMS fiber for Lab QC (150.0 cm)
13	04072016 SJGW 18	04/07/2016 10:00	↓	1								PDMS fiber for Lab QC (150.0 cm)
14												
15												

Notes: 04072016 SJGW 10 : SPME blank (76.3 + 75.4 cm), 04072016 SJGW 11 ~ 15 : PDMS fibers to determine initial PRCs concentrations (11: 76.0 + 75.2 cm, 12: 75.1 + 74.9 cm, 13: 75.0 + 75.0 cm, 14: 75.8 + 75.0 cm, 15: 75.0 + 75.1 cm), 04072016 SJGW 16 ~ 18 : PDMS fibers for lab QC (16: 75.0 + 75.0 cm, 17: 75.0 + 75.0 cm, 18: 75.0 + 75.0 cm)

Relinquished By:	Company: Anchor QEA, LLC	Received By:	Company:
Signature/Printed Name: Masa Kanematsu	Date/Time: 4/7/2016	Signature/Printed Name	Date/Time

Relinquished By:	Company:	Received By:	Company: ALS HRMS
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time: 4/8/16 9:00

E1600326 5
Integral Consulting, Inc.
San Jacinto

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

ALS Environmental

Cooler Receipt Form

Project Chemist AK

Client/Project Anchor QEA

Thermometer ID SM04

Date/Time Received: 4/8/16 9:00 Initials: AL Date/Time Logged in: 4/8/16 Initials AL

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where? No Seals
4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ✓ Gel Packs ○ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7760 6344 3470		4/8/16	9:15	AL	15.6/17.6	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Samples received out of temp AL 4/8/16

Service request Label:

E1600326 5
Integral Consulting, Inc.
San Jacinto

Effective 10/04/2013

ALS Environmental - Houston HRMS

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Houston, TX 77099
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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 262304 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/26/16 12:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600282-006	04052016SJPW10	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
2	E1600326-001	03162016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
3	E1600326-002	04072016SJGW1	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
4	E1600326-003	04072016SJGW2	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
5	EQ1600219-01	MB		1613B/Dioxins Furans			NonAq Liquid	2.210g	
6	EQ1600219-02	LCS		1613B/Dioxins Furans			NonAq Liquid	2.086g	
7	EQ1600219-03	DLCS		1613B/Dioxins Furans			NonAq Liquid	2.032g	

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution Inventory ID 86467 Logbook Ref: 86467 12/8/2015 CID 100ng/ml Expires On: 06/05/2016

E1600282-006 20.00µL E1600326-001 20.00µL E1600326-002 20.00µL E1600326-003 20.00µL EQ1600219-01 20.00µL EQ1600219-02 20.00µL
EQ1600219-03 20.00µL

Name: 1613B Matrix Working Standard Inventory ID 172305 Logbook Ref: JP 172305 5/10/16 2-20 ng/mL Expires On: 11/06/2016

E1600282-006 100.00µL E1600326-001 100.00µL E1600326-002 100.00µL E1600326-003 100.00µL EQ1600219-01 100.00µL EQ1600219-02 100.00µL
EQ1600219-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 172717 Logbook Ref: 172717 AL 05/25/16 2-4ng/mL Expires On: 11/16/2016

E1600282-006 1,000.00µL E1600326-001 1,000.00µL E1600326-002 1,000.00µL E1600326-003 1,000.00µL EQ1600219-01 1,000.00µL EQ1600219-02 1,000.00µL
EQ1600219-03 1,000.00µL

Preparation Materials

Carbon, High Purity	CID 05/23/2016 (172622)	Ethyl Acetate 99.9% Minimum EtOAc	CID 02/25/2016 (88324)	Glass Wool	CID 04/01/201 (171329)
Hexanes 95%	CID 05/16/2016 (172432)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)	Sodium Hydroxide Reagent Grade NaOH	05/12/2016 CID (172369)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 04/25/16 (171913)	Asian Taste Pure Canola Oil	TW 04/29/16 (172043)	Silica Gel	CID 05/13/2016 (172433)
sulfuric acid	AL 03/25/16 (89012)				

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/26/16 12:00	Started:	6/1/16 14:00	Started:	6/3/16 08:00	Started:	6/3/16 12:00
Finished:	5/26/16 14:00	Finished:	6/1/16 15:00	Finished:	6/3/16 09:30	Finished:	6/3/16 12:30
By:	ALOPEZ	By:	ALOPEZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 262304 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/26/16 12:00 PM

Comments: ______________________________

Reviewed By: ____________________ Date: ______________

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Preparation Information Benchsheet

Prep Run#: 262305 **Prep WorkFlow:** OrgExtDiox(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 5/25/16 02:30 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600326-004	04072016SJGW10	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
2	E1600326-005	04072016SJGW11	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
3	E1600326-006	04072016SJGW12	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
4	E1600326-007	04072016SJGW13	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
5	E1600326-008	04072016SJGW14	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
6	E1600326-009	04072016SJGW15	.01	1613B/Dioxins Furans			NonAq Liquid	1.000g	fibers
7	EQ1600220-01	MB		1613B/Dioxins Furans			NonAq Liquid	2.201g	
8	EQ1600220-02	LCS		1613B/Dioxins Furans			NonAq Liquid	2.007g	
9	EQ1600220-03	DLCS		1613B/Dioxins Furans			NonAq Liquid	2.089g	

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution Inventory ID 86467 Logbook Ref: 86467 12/8/2015 CID 100ng/ml Expires On: 06/05/2016

E1600326-004	20.00µL	E1600326-005	20.00µL	E1600326-006	20.00µL	E1600326-007	20.00µL	E1600326-008	20.00µL	E1600326-009	20.00µL
EQ1600220-01	20.00µL	EQ1600220-02	20.00µL	EQ1600220-03	20.00µL						

Name: 1613B Matrix Working Standard Inventory ID 172305 Logbook Ref: JP 172305 5/10/16 2-20 ng/mL Expires On: 11/06/2016

EQ1600220-02	100.00µL	EQ1600220-03	100.00µL

Name: 8290 Internal Working Standard Inventory ID 172703 Logbook Ref: 172703 AL 05/24/16 10-50 ng/mL Expires On: 11/20/2016

E1600326-004	100.00µL	E1600326-005	100.00µL	E1600326-006	100.00µL	E1600326-007	100.00µL	E1600326-008	100.00µL	E1600326-009	100.00µL
EQ1600220-01	100.00µL	EQ1600220-02	100.00µL	EQ1600220-03	100.00µL						

Preparation Materials

Carbon, High Purity	CID 05/23/2016 (172622)	Ethyl Acetate 99.9% Minimum EtOAc	CID 02/25/2016 (88324)	Glass Wool	CID 04/01/201 (171329)
Hexanes 95%	CID 05/16/2016 (172432)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)	Sodium Hydroxide Reagent Grade NaOH	CID 5/23/2016 (172624)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 04/25/16 (171913)	Asian Taste Pure Canola Oil	TW 04/29/16 (172043)	Silica Gel	CID 05/13/2016 (172433)
sulfuric acid	AL 03/25/16 (89012)	Toluene 99.9% Minimum	AL 05/23/16 (172678)		

Preparation Information Benchsheet

Prep Run#:	262305	**Prep WorkFlow:**	OrgExtDiox(365)	**Status:**	Prepped
Team:	Semivoa GCMS/ALOPEZ	**Prep Method:**	Method	**Prep Date/Time:**	5/25/16 02:30 PM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/25/16 14:30	Started:	5/25/16 16:30	Started:	5/26/16 06:00	Started:	5/26/16 11:00
Finished:	5/26/16 14:52	Finished:	5/25/16 17:00	Finished:	5/26/16 10:30	Finished:	5/26/16 14:50
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: ______________________________

Reviewed By: ____________________ Date: ____________________

Chain of Custody

Relinquished By:	____________________	Date:	____________________	Extracts Examined
Received By:	____________________	Date:	____________________	Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	03/16/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	03162016SJGW1	**Units:**	
Lab Code:	E1600326-001	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 21:26
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603995	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	924.038	46		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	876.710	44		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	867.417	43		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	825.204	41		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1592.206	40		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.784			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	ng/Kg
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW1	**Units:**	
Lab Code:	E1600326-002	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 22:15
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603996	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	876.748	44		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	842.951	42		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	884.009	44		24-185	1.58	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	847.501	42		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1799.486	45		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.780			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	ng/Kg
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	ng/Kg
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:00
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW2	**Units:**	
Lab Code:	E1600326-003	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:04
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603997	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	858.906	43		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	821.549	41		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	850.108	43		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	824.903	41		21-178	1.60	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1730.421	43		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.484			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	ng/Kg
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	ng/Kg
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW10	**Units:**	
Lab Code:	E1600326-004	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 23:53
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603998	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		104.060				0.77	0.951
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	346.348	35		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	362.174	36		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	430.225	43		24-185	1.61	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13		77.253			21-178	1.57	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	923.092	46		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		45.447			35-197	NA	1.022

REVISED
3:41 pm, Jul 11, 2016

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	ng/Kg
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	ng/Kg
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW11	**Units:**	
Lab Code:	E1600326-005	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 00:42
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603999	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		89.905				0.79	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	298.741	30		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	305.926	31		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	366.627	37		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13		67.032			21-178	1.62	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	866.877	43		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		39.581			35-197	NA	1.022

REVISED
3:41 pm, Jul 11, 2016

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	ng/Kg
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	ng/Kg
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW12	**Units:**	
Lab Code:	E1600326-006	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 01:31
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604000	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	107.635				0.80	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	355.081	36		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	380.932	38		24-169	0.79	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	412.800	41		24-185	1.60	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	72.901			21-178	1.56	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	844.654	42		29-147	0.52	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	44.712			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	ng/Kg
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	21.4	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	23.7	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	ng/Kg
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	21.4	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	23.7	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW13	**Units:**	
Lab Code:	E1600326-007	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 02:20
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604001	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	99.386				0.73	0.951
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	255.982	26		25-164	0.77	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	284.227	28		24-169	0.82	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	380.088	38		24-185	1.55	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	65.915			21-178	1.45	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	722.817	36		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	36.092			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	ng/Kg
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	11.3	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	12.6	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	ng/Kg
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	11.3	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	12.6	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW14	**Units:**	
Lab Code:	E1600326-008	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:07
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604010	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	104.469				0.72	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	307.804	31		25-164	0.74	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	317.820	32		24-169	0.76	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	397.717	40		24-185	1.58	1.140
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	73.359			21-178	1.65	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	748.931	37		29-147	0.49	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	40.364			35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	ng/Kg
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	5.00	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	5.00	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	25.0	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	ng/Kg
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	5.00	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	5.00	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	25.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	04/07/16 09:30
Sample Matrix:	NonAq Liquid	**Date Received:**	04/08/16 09:00
Sample Name:	04072016SJGW15	**Units:**	
Lab Code:	E1600326-009	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 14:54
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	1.000g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604011	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13	350	91.065				0.79	0.950
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	318.300	32		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	314.287	31		24-169	0.79	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	365.475	37		24-185	1.58	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	400	63.191			21-178	1.62	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	831.108	42		29-147	0.50	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	338	40.286			35-197	NA	1.022

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	2.26	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	2.26	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	11.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	2.26	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	2.26	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	11.3	1

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Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	
Lab Code:	EQ1600219-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/25/16 19:48
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.210g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P603993	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	880.428	44		25-164	0.78	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	825.710	41		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	826.023	41		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	787.091	39		21-178	1.59	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1489.602	37		29-147	0.51	1.008
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.000			35-197	NA	1.022

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ND	U	2.27	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ND	U	2.27	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ND	U	11.4	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	ND	U	2.27	1
Tetrachlorodibenzofurans (TCDF), Total	ND	U	2.27	1
Pentachlorodibenzofurans (PeCDF), Total	ND	U	11.4	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	
Lab Code:	EQ1600220-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 11:18
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604007	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	274.895	27		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	259.869	26		24-169	0.77	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	264.348	26		24-185	1.59	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	600.493	30		29-147	0.51	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0.705			35-197	NA	1.022

Accuracy & Precision

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Analyzed:**	06/26/16
Sample Matrix:	NonAq Liquid	**Date Extracted:**	05/26/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	504016

	Lab Control Sample EQ1600219-02			Duplicate Lab Control Sample EQ1600219-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484	479	101	478	492	97	68-160	1	50
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1	95.9	90	94.1	98.4	96	75-158	9	50
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2	95.9	86	83.1	98.4	84	67-158	1	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	82.2		2.40	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	86.1		2.40	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	484		12.0	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	82.2		2.40	1
Tetrachlorodibenzofurans (TCDF), Total	86.1		2.40	1
Pentachlorodibenzofurans (PeCDF), Total	931		12.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:09
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.086g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604002	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	939.378	47		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	896.386	45		24-169	0.80	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	905.972	45		24-185	1.60	1.142
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	856.361	43		21-178	1.57	1.174
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1759.063	44		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.286			35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	83.1		6.46	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	94.1		6.40	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	478		12.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	83.1		6.46	1
Tetrachlorodibenzofurans (TCDF), Total	94.1		6.40	1
Pentachlorodibenzofurans (PeCDF), Total	919		12.3	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	
Lab Code:	EQ1600219-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 03:58
Prep Method:	Method	**Date Extracted:**	5/26/16
Sample Amount:	2.032g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604003	**Blank File Name:**	P603993
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P603991

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	2000	761.306	38		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	2000	729.732	36		24-169	0.83	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	2000	847.157	42		24-185	1.59	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13	2000	815.813	41		21-178	1.58	1.173
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	4000	1517.396	38		29-147	0.51	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		0			35-197	NA	

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Analyzed:**	06/26/16
Sample Matrix:	NonAq Liquid	**Date Extracted:**	05/25/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	504351

	Lab Control Sample EQ1600220-02			Duplicate Lab Control Sample EQ1600220-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	500	498	100	482	479	101	68-160	4	50
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	97.3	99.7	98	98.4	95.7	103	75-158	1	50
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	101	99.7	101	95.1	95.7	99	67-158	6	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	101		2.49	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	97.3		2.49	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	500		12.5	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	101		2.49	1
Tetrachlorodibenzofurans (TCDF), Total	97.3		2.49	1
Pentachlorodibenzofurans (PeCDF), Total	982		12.5	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	
Lab Code:	EQ1600220-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 18:59
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.007g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604016	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	307.817	31		25-164	0.79	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	296.673	30		24-169	0.78	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	335.135	34		24-185	1.57	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	772.331	39		29-147	0.52	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.618			35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	95.1		4.52	1
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	98.4		6.79	1
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	482		12.0	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Tetrachlorodibenzo-p-dioxins (TCDD), Total	95.1		4.52	1
Tetrachlorodibenzofurans (TCDF), Total	98.4		6.79	1
Pentachlorodibenzofurans (PeCDF), Total	937		12.0	1

Printed 7/7/2016 5:38:32 PM Superset Reference:16-0000383419 rev 00

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1600326
Project:	San Jacinto/150557-01.01	**Date Collected:**	NA
Sample Matrix:	NonAq Liquid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	
Lab Code:	EQ1600220-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	06/26/16 19:48
Prep Method:	Method	**Date Extracted:**	5/25/16
Sample Amount:	2.089g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P604017	**Blank File Name:**	P604007
ICAL Date:	06/25/16	**Cal Ver. File Name:**	P604006

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
1,2,3,4-Tetrachlorodibenzofuran-C13		0					
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	1000	323.556	32		25-164	0.80	1.021
2,3,7,8-Tetrachlorodibenzofuran-C13	1000	303.363	30		24-169	0.76	0.994
1,2,3,7,8-Pentachlorodibenzofuran-C13	1000	368.296	37		24-185	1.55	1.141
2,3,4,7,8-Pentachlorodibenzofuran-C13		0			21-178		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	2000	742.863	37		29-147	0.50	1.009
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37		1.975			35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
03162016SJGW1

Run #10 Filename P603995 Samp: 1 Inj: 1 Acquired: 25-JUN-16 21:26:14
Processed: 1-JUL-16 12:44:37 Sample ID: E1600326-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.572e+04	4.459e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	5.256e+04	3.295e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.946e+04	3.134e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.342e+04	6.370e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.700e+04	3.426e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.167e+04	3.973e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.827e+04	3.144e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	5.286e+01				no	0.945

EDL
(1.49e+03 + 1.21e+03) x 2000 pg 1 x 2.5
TCDD =--- = 1.11 ng/kg
(~~2.700e+04~~ + ~~3.426e+04~~) x 1.0 g x 100 / x 1.048
(5.16e+06 + 6.44e+06)
LK 07/05/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
03162016SJGW1

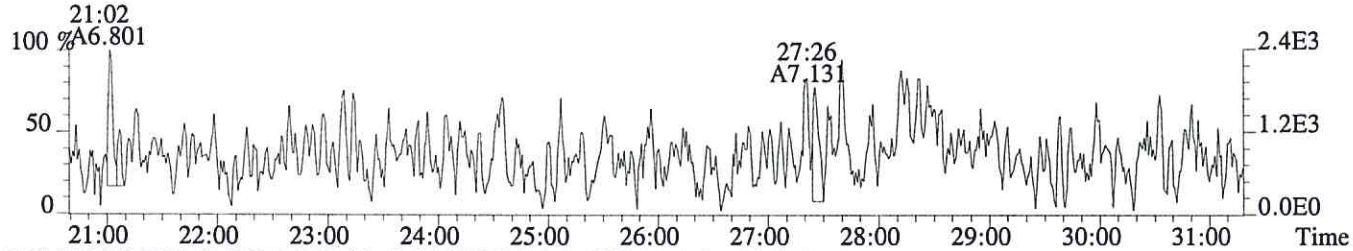
Run #10 Filename P603995 Samp: 1 Inj: 1 Acquired: 25-JUN-16 21:26:14
Processed: 1-JUL-16 12:44:37 LAB. ID: E1600326-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.03e+03	*	*	3.17e+03	*
3	2,3,4,7,8-PeCDF	*	4.68e+02	*	*	1.59e+03	*
11	2,3,7,8-TCDD	*	1.49e+03	*	*	1.21e+03	*
18	13C-2,3,7,8-TCDF	6.34e+06	5.38e+03	1.2e+03	7.87e+06	3.56e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	9.81e+06	7.67e+03	1.3e+03	6.16e+06	5.92e+03	1.0e+03
20	13C-2,3,4,7,8-PeCDF	9.80e+06	7.67e+03	1.3e+03	6.18e+06	5.92e+03	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	6.64e+06	1.29e+03	5.1e+03	1.26e+07	1.56e+03	8.0e+03
26	13C-1,2,3,4-TCDF	*	5.38e+03	*	*	3.56e+03	*
27	13C-2,3,7,8-TCDD	5.16e+06	7.11e+03	7.3e+02	6.44e+06	3.90e+03	1.7e+03
33	13C-1,2,3,4-TCDD	5.89e+06	7.11e+03	8.3e+02	7.40e+06	3.90e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.72e+06	1.80e+03	4.3e+03	6.16e+06	1.46e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	1.21e+04	1.92e+03	6.3e+00			

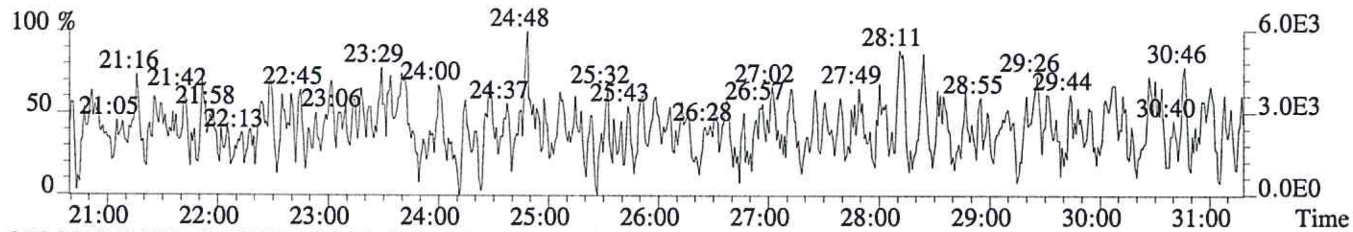
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

www.alsglobal.com

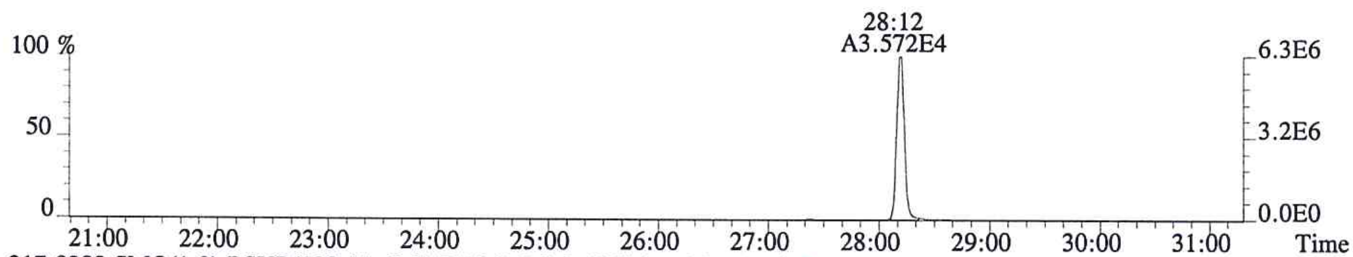
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



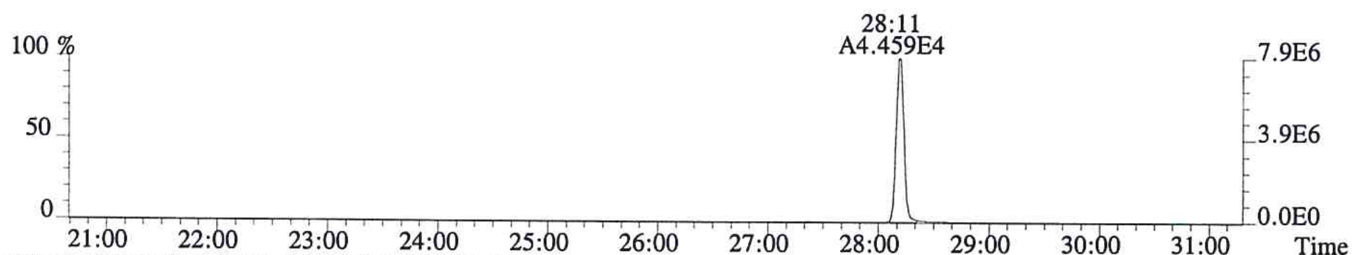
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



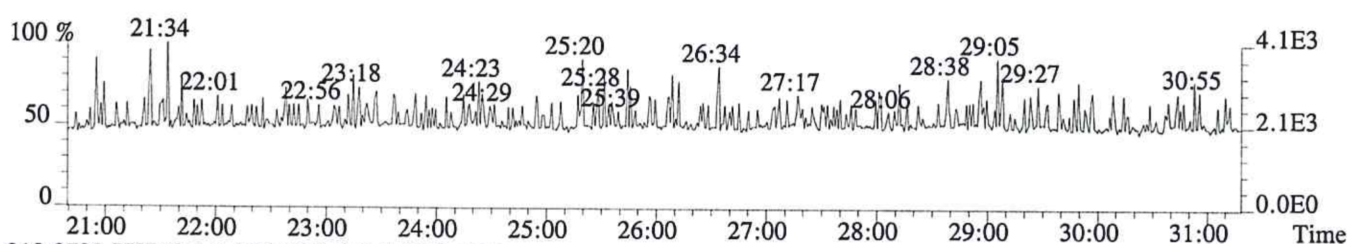
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5384.0,1.00%,F,T)



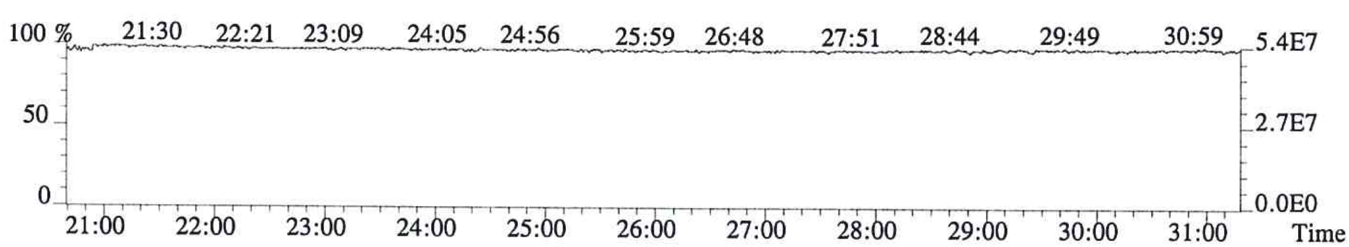
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



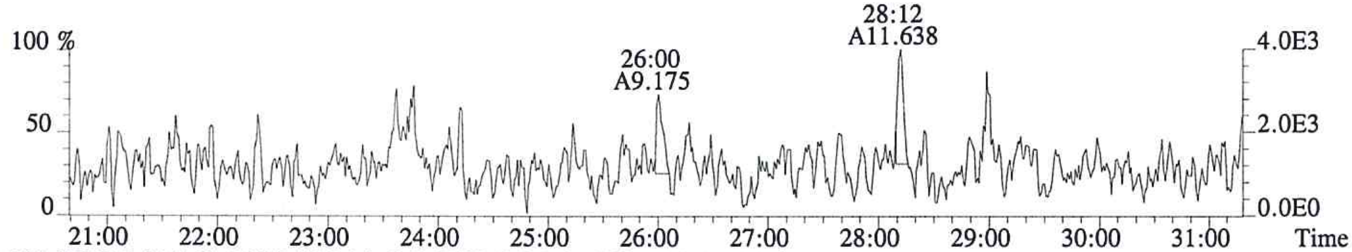
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



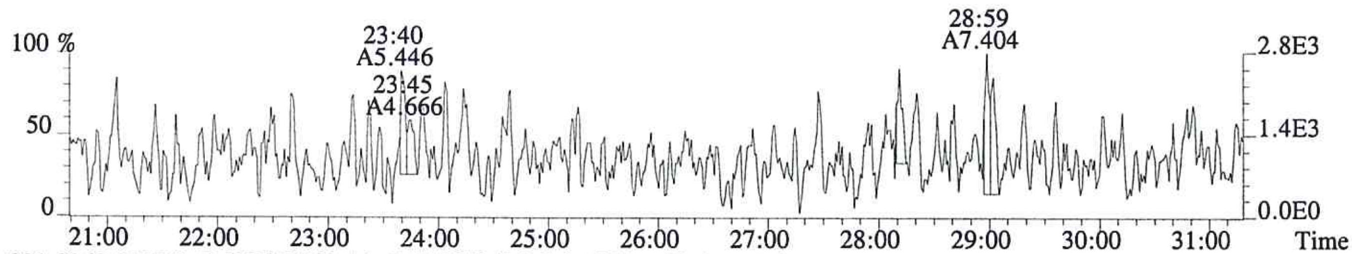
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



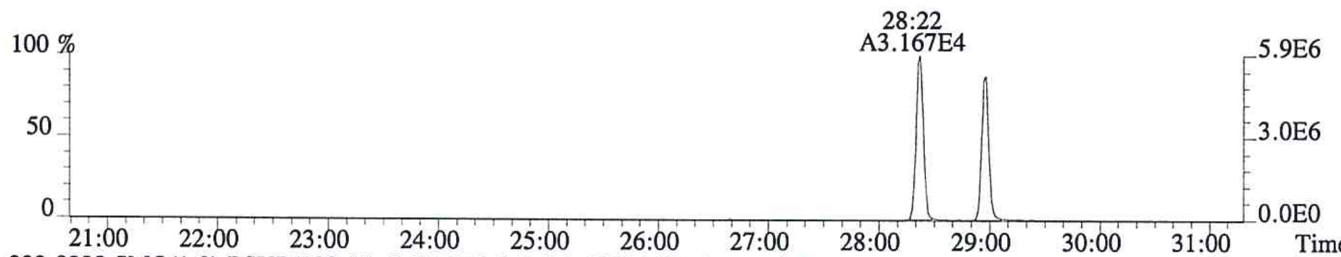
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



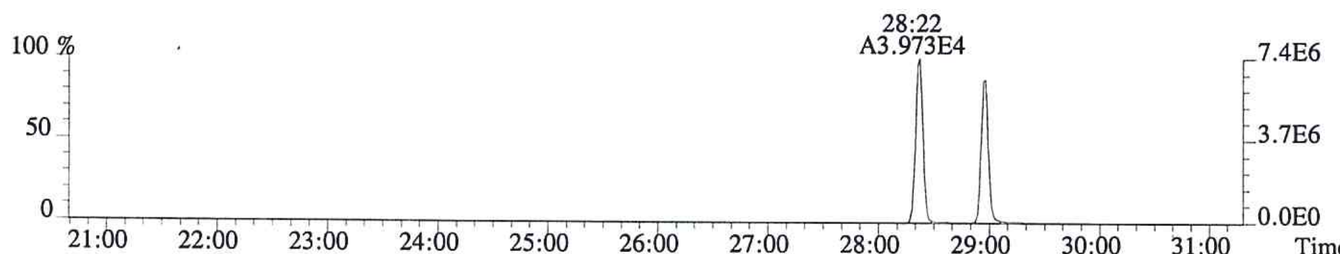
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



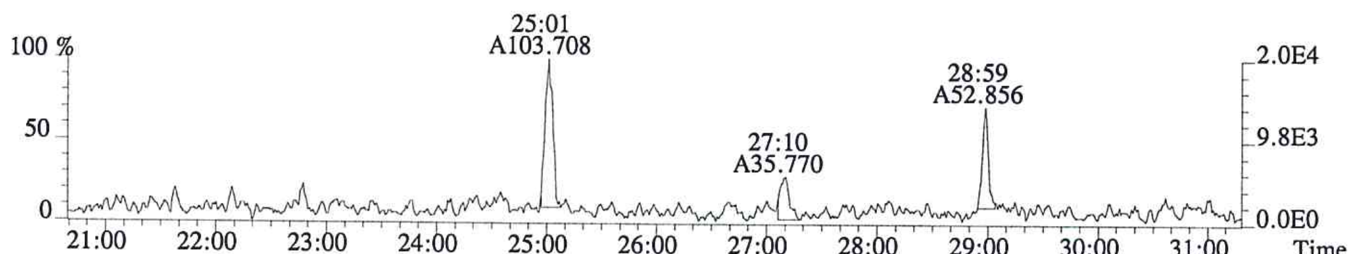
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7108.0,1.00%,F,T)



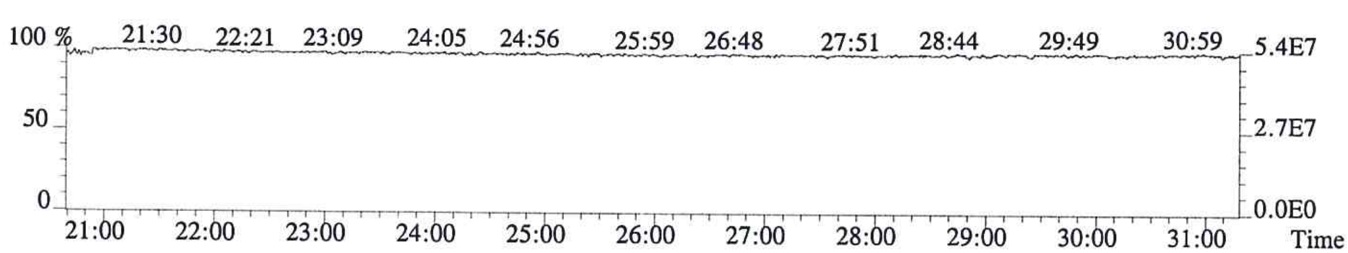
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3904.0,1.00%,F,T)



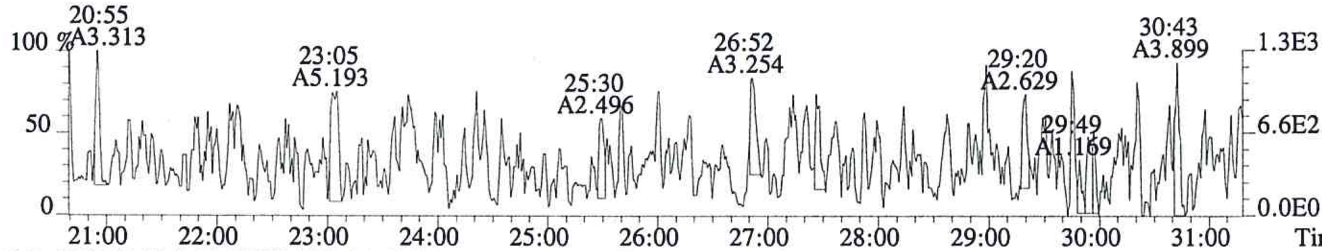
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



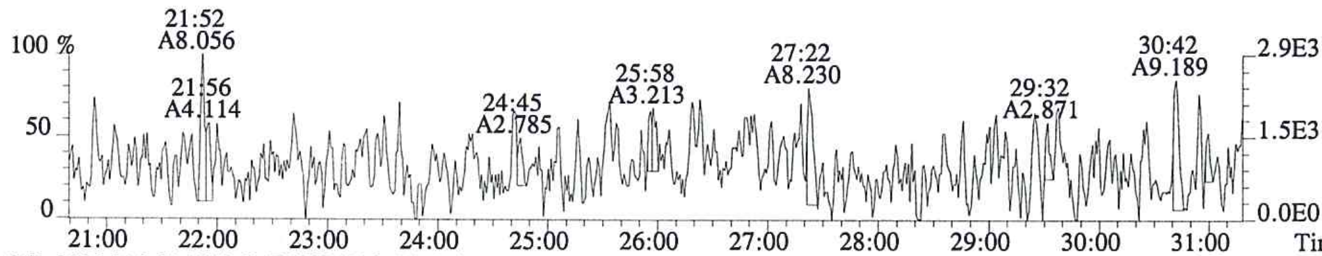
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



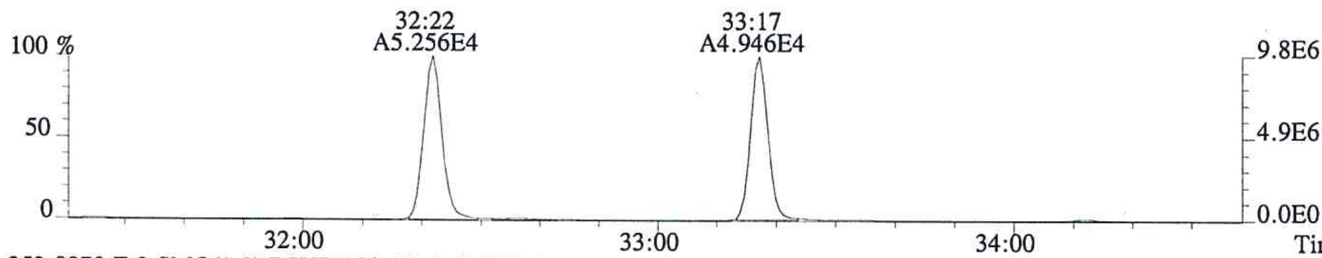
File:P603995 #1-756 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



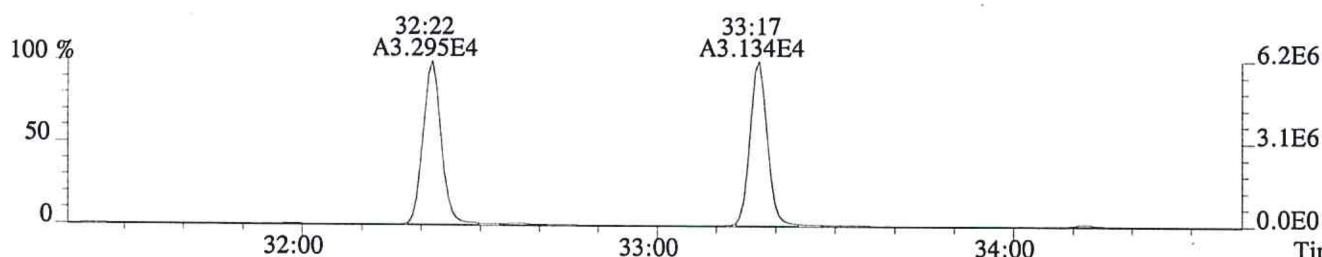
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



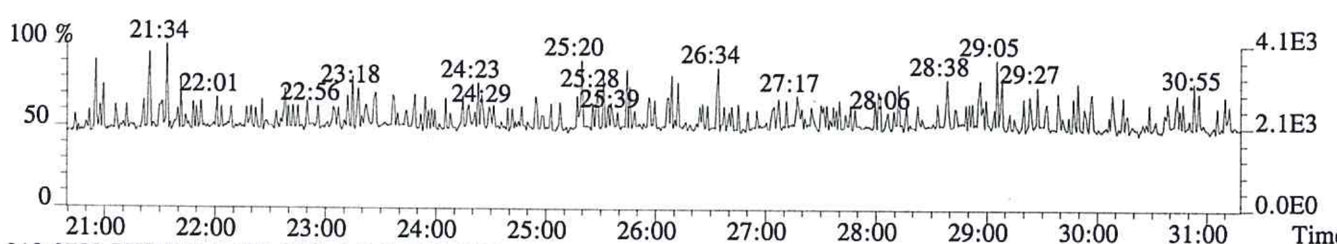
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7672.0,1.00%,F,T)



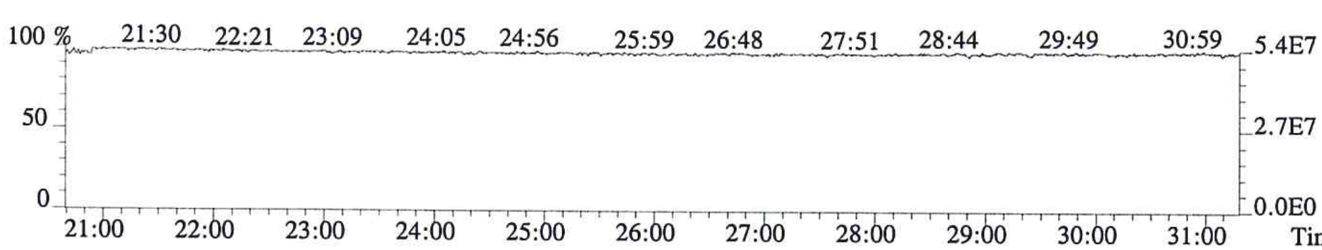
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

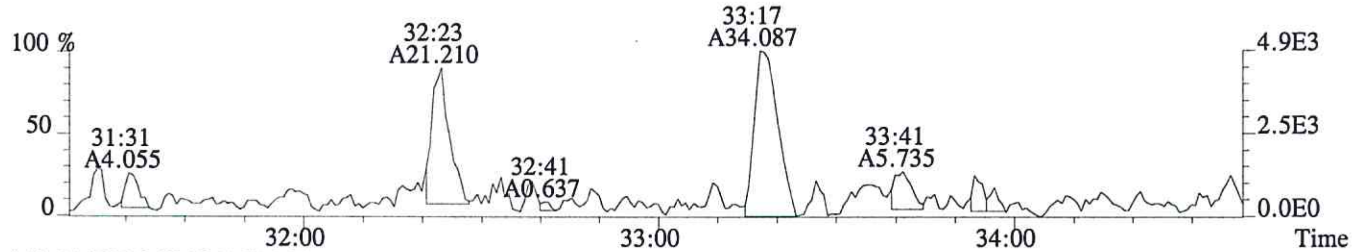


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

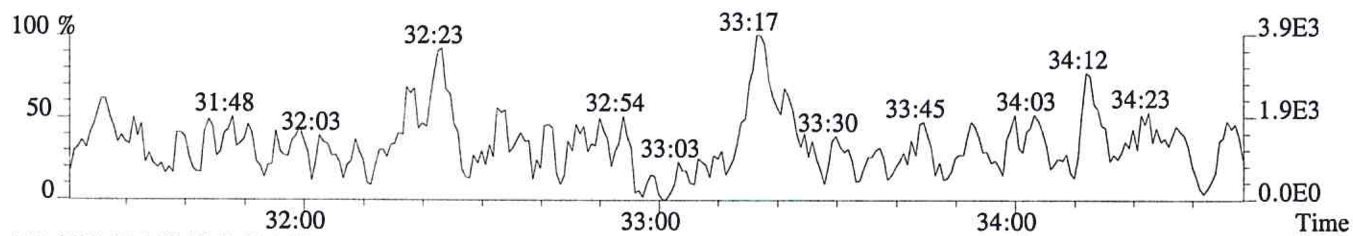


File:P603995 #1-298 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001

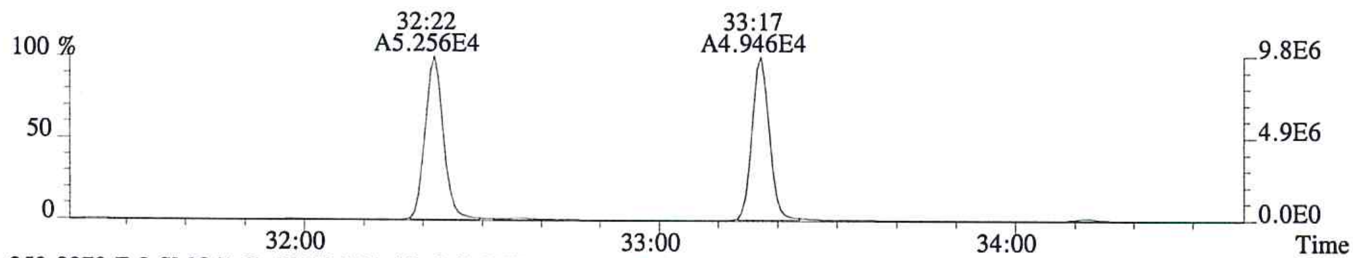
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



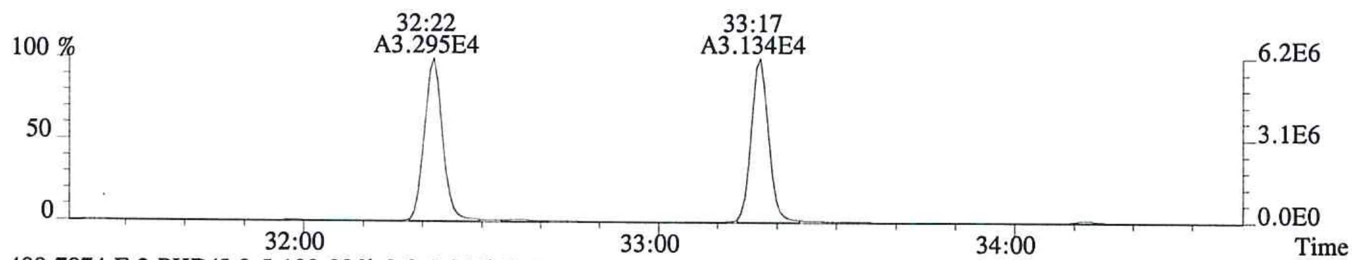
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



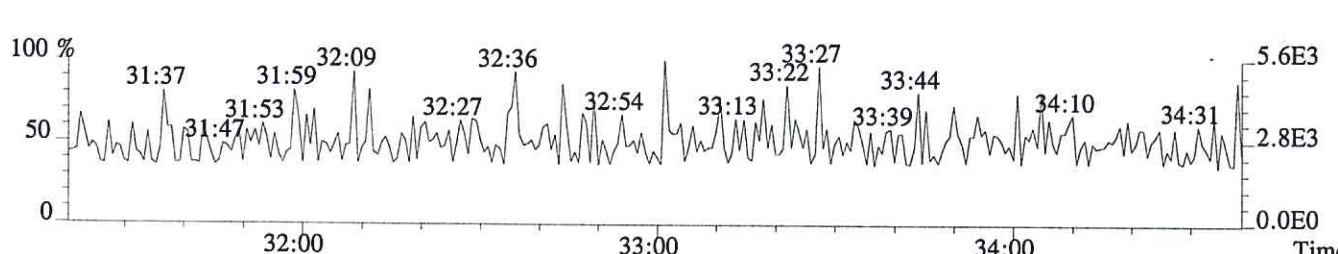
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7672.0,1.00%,F,T)



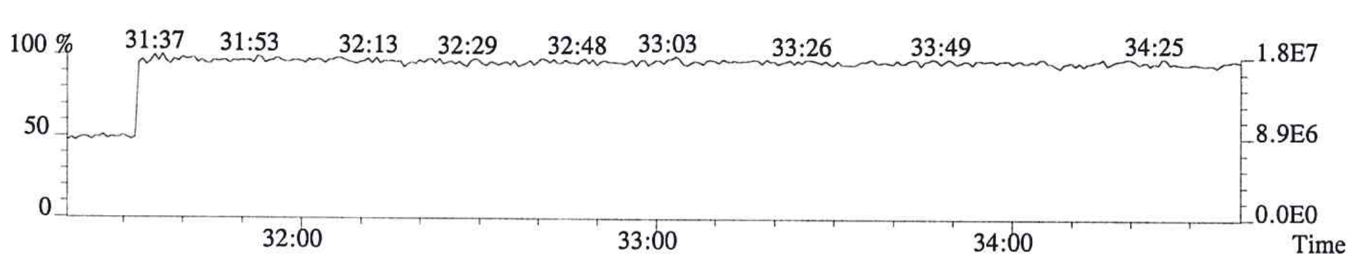
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



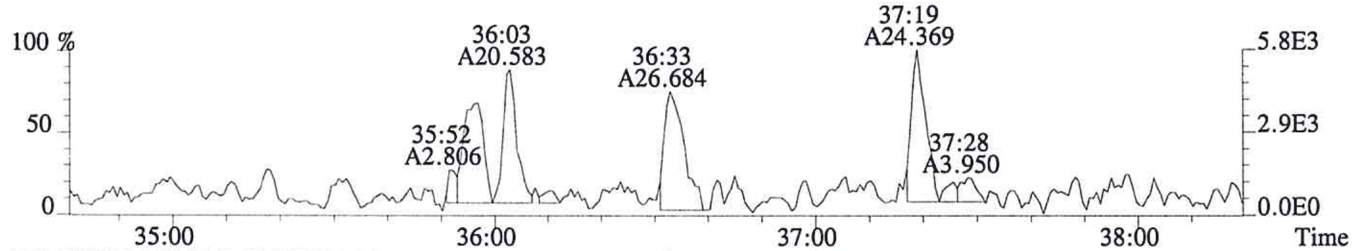
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



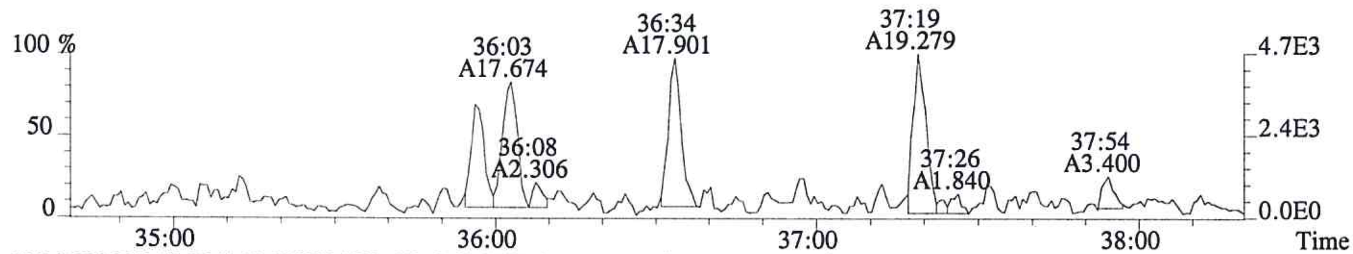
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



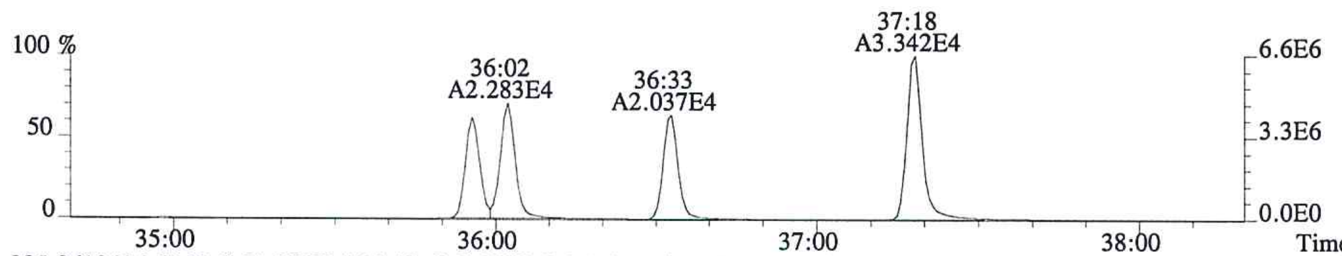
File:P603995 #1-329 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



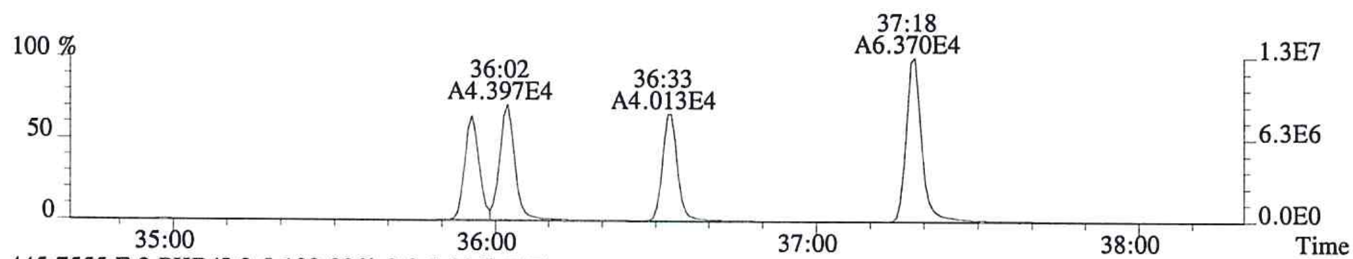
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



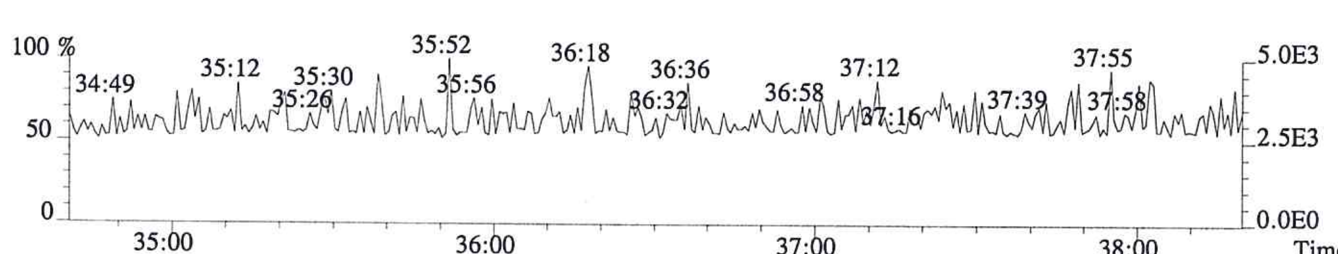
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



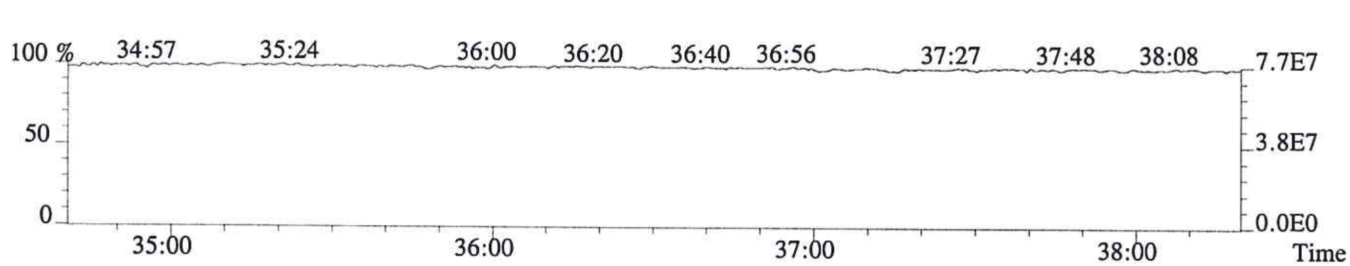
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



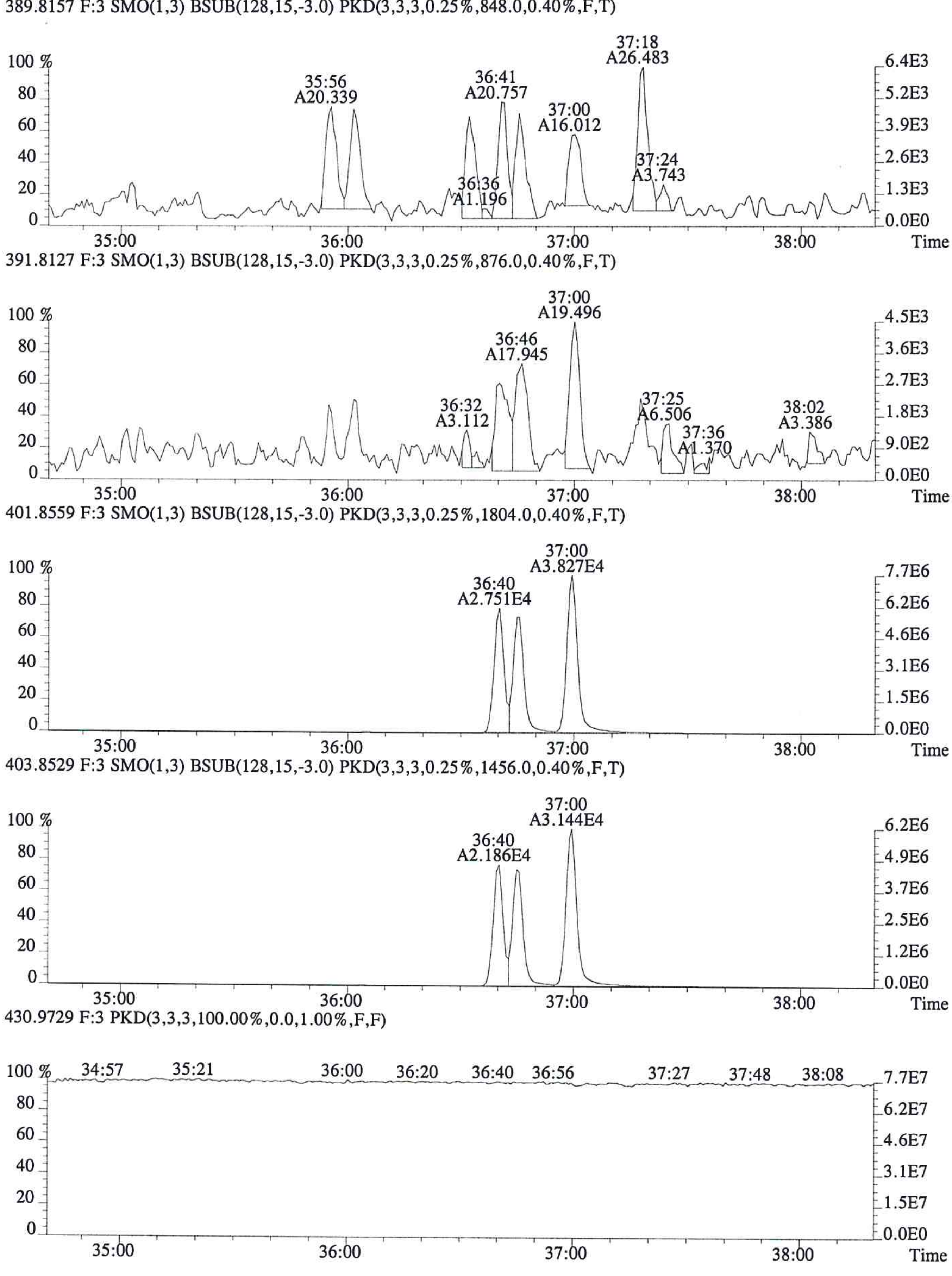
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P603995 #1-329 Acq:25-JUN-2016 21:26:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-001



Sample Response Summary

CLIENT ID.
04072016SJGW1

Run #11 Filename P603996 Samp: 1 Inj: 1 Acquired: 25-JUN-16 22:15:14
Processed: 1-JUL-16 12:44:38 Sample ID: E1600326-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.449e+04	4.335e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	5.378e+04	3.407e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	5.126e+04	3.240e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.763e+04	7.189e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.579e+04	3.280e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.190e+04	4.008e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.861e+04	3.095e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	5.302e+01				no	0.945

EDL
```
        (1.06e+03 + 1.05e+03 ) x 2000 pg 1 x2.5
TCDD =------------------------------------------------- = 0.881 ng/kg
        (~~2.579e+04~~ + ~~3.280e+04~~) x 1.0 g x 100/ x 1.048   UM 07/05/16
        (5.04e+06 + 6.38e+06)
```

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW1

Run #11 Filename P603996 Samp: 1 Inj: 1 Acquired: 25-JUN-16 22:15:14
Processed: 1-JUL-16 12:44:38 LAB. ID: E1600326-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.24e+02	*	*	2.86e+03	*
3	2,3,4,7,8-PeCDF	*	5.48e+02	*	*	1.51e+03	*
11	2,3,7,8-TCDD	*	1.06e+03	*	*	1.05e+03	*
18	13C-2,3,7,8-TCDF	6.37e+06	4.86e+03	1.3e+03	7.93e+06	3.53e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+07	7.46e+03	1.3e+03	6.36e+06	5.76e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	7.46e+03	1.4e+03	6.40e+06	5.76e+03	1.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.57e+06	9.76e+02	7.8e+03	1.45e+07	1.98e+03	7.3e+03
26	13C-1,2,3,4-TCDF	*	4.86e+03	*	*	3.53e+03	*
27	13C-2,3,7,8-TCDD	5.04e+06	8.21e+03	6.1e+02	6.38e+06	3.72e+03	1.7e+03
33	13C-1,2,3,4-TCDD	6.10e+06	8.21e+03	7.4e+02	7.59e+06	3.72e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.81e+06	2.16e+03	3.6e+03	6.30e+06	1.68e+03	3.7e+03
35	37Cl-2,3,7,8-TCDD	1.23e+04	1.88e+03	6.5e+00			

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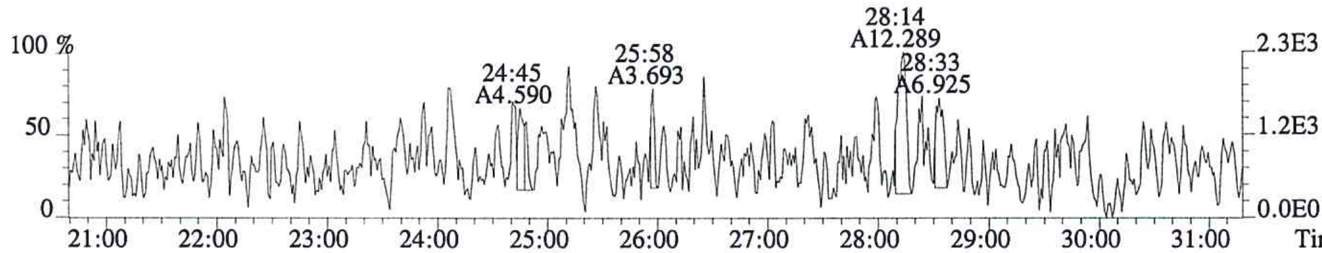
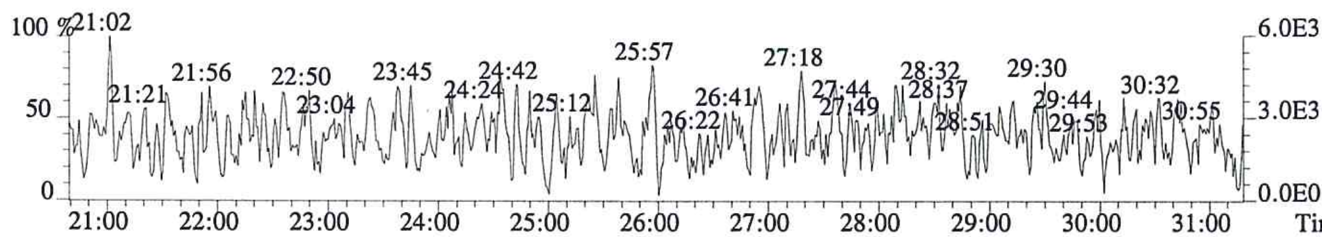
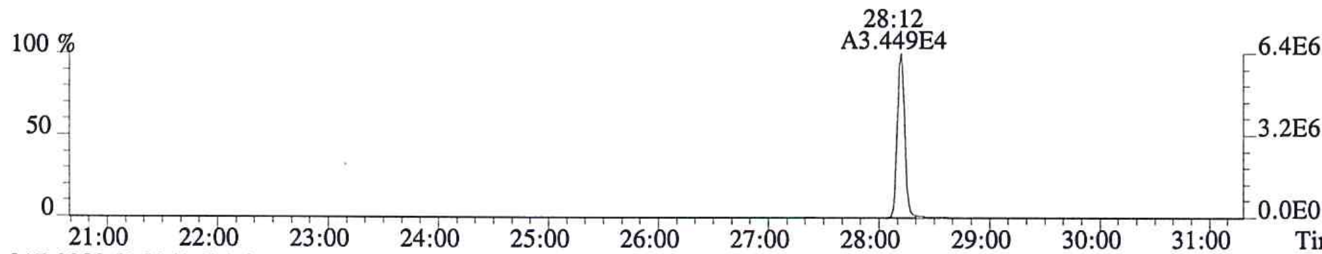
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



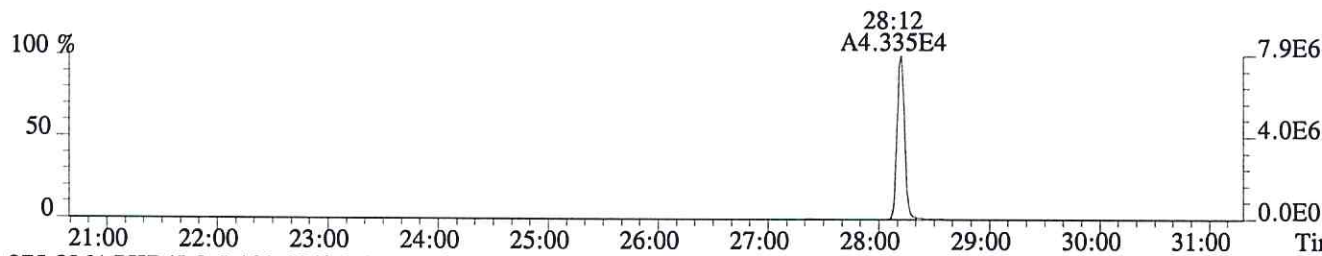
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



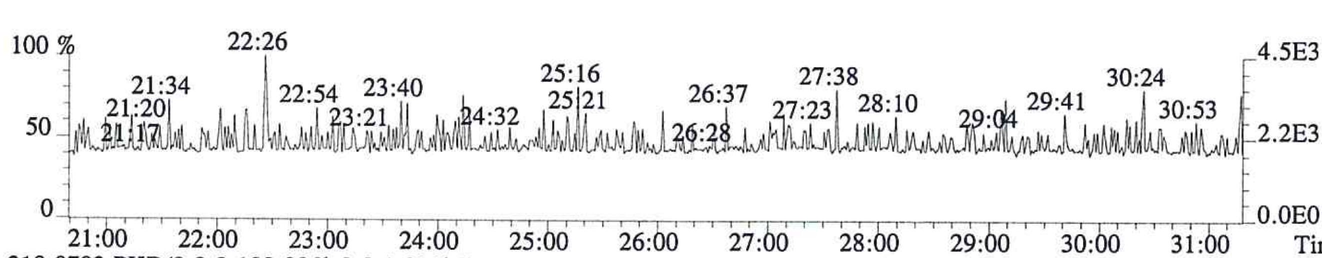
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4864.0,1.00%,F,T)



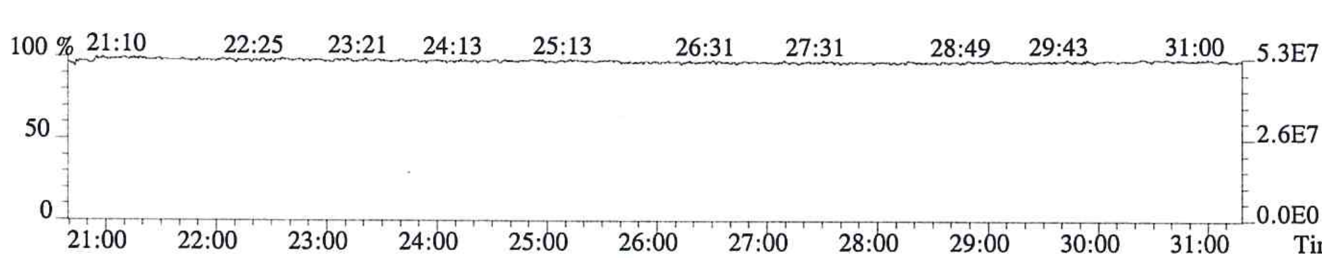
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3532.0,1.00%,F,T)



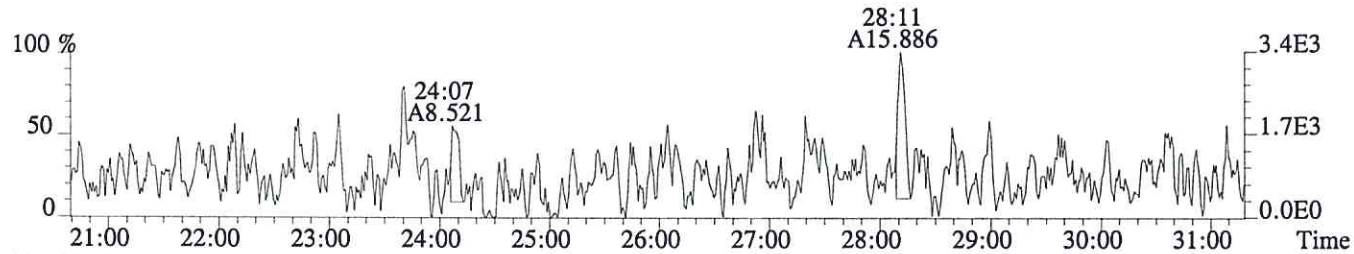
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



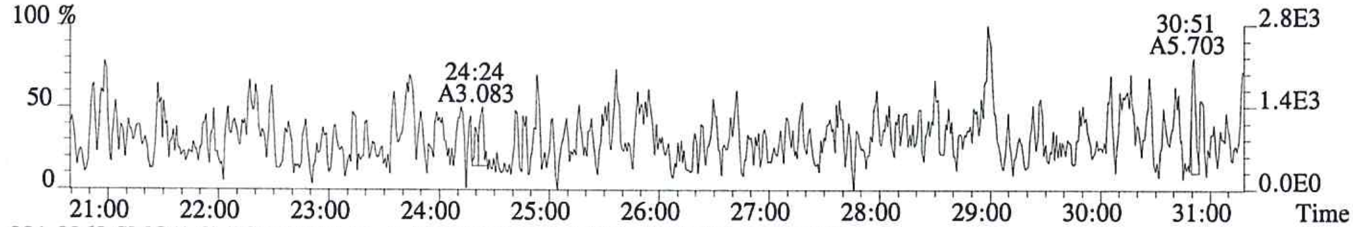
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



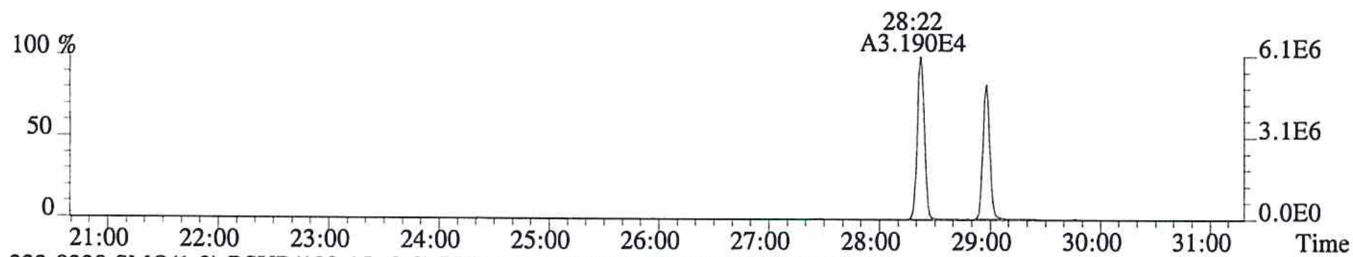
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



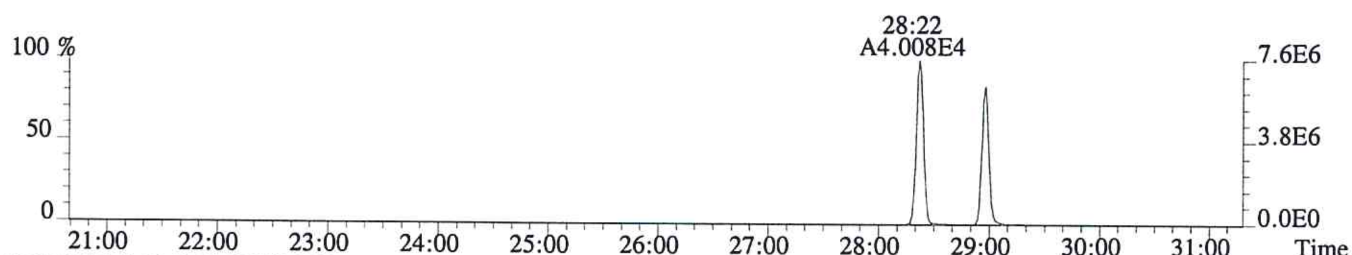
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



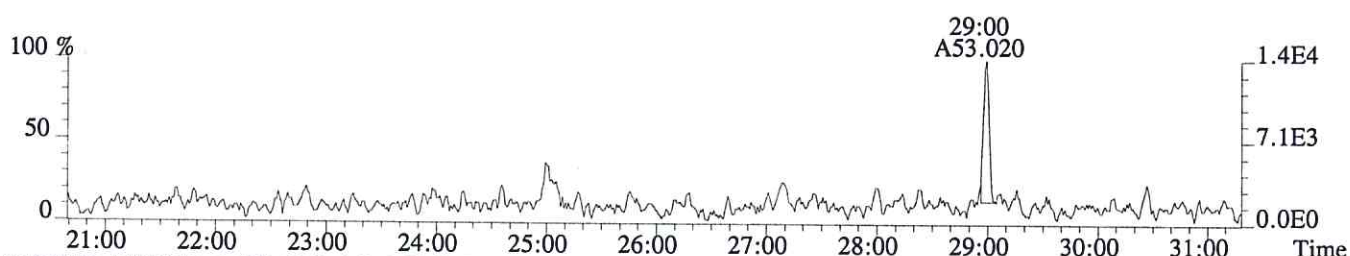
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8208.0,1.00%,F,T)



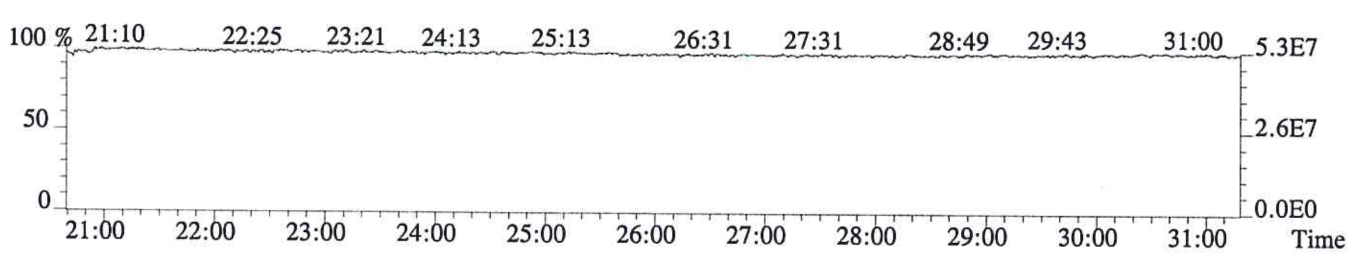
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



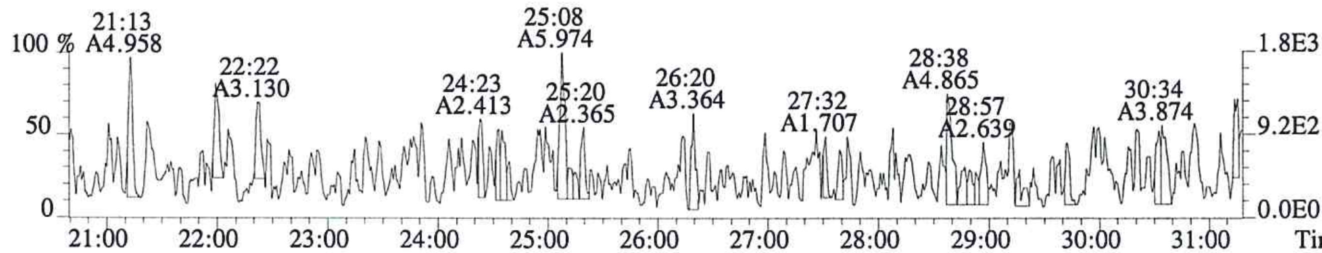
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



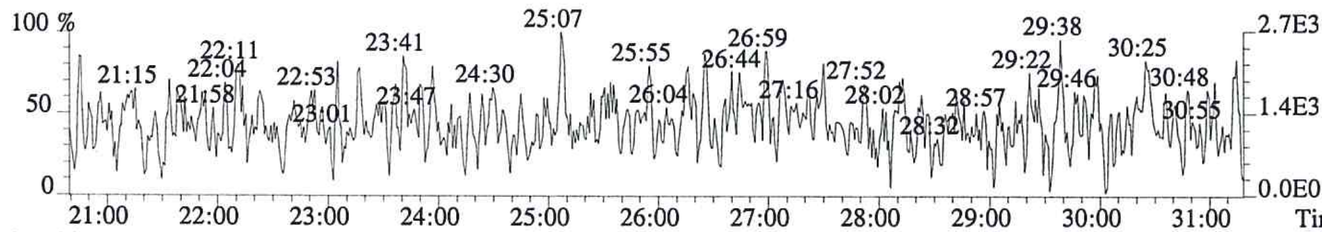
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



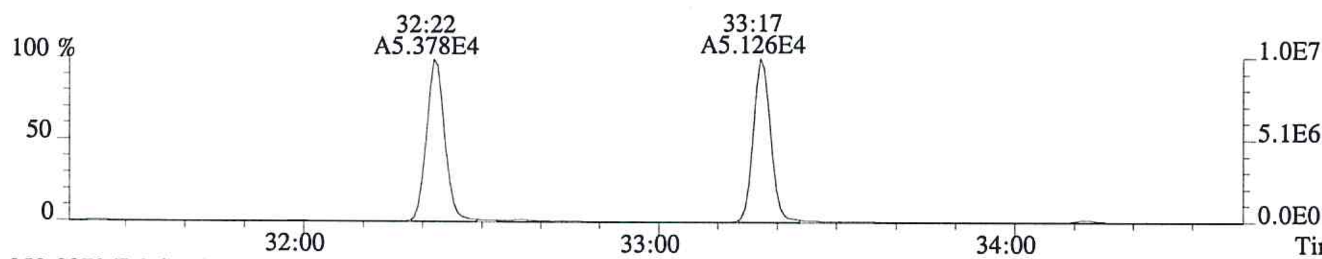
File:P603996 #1-756 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



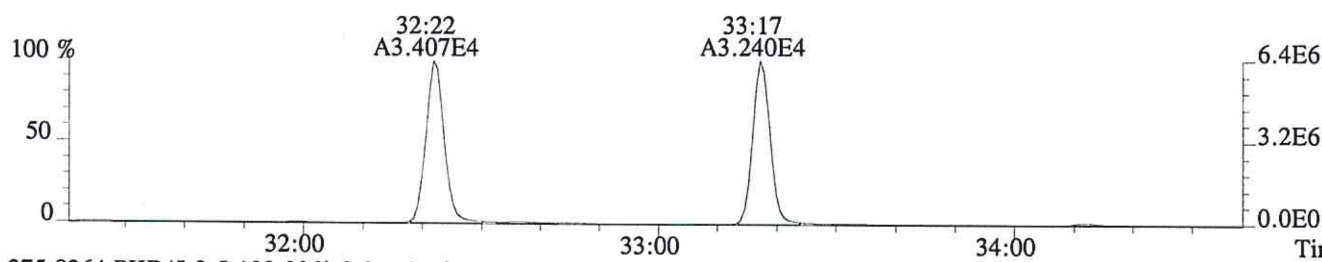
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



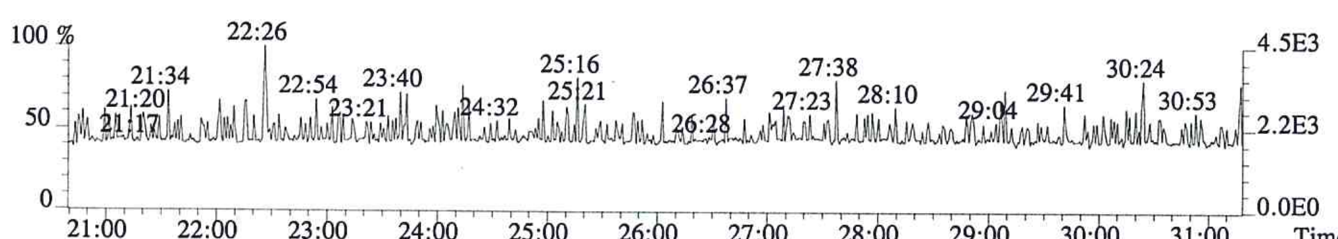
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7456.0,1.00%,F,T)



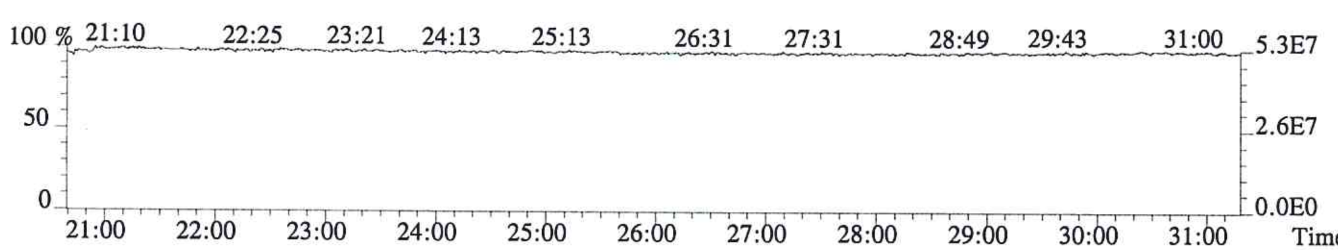
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5756.0,1.00%,F,T)



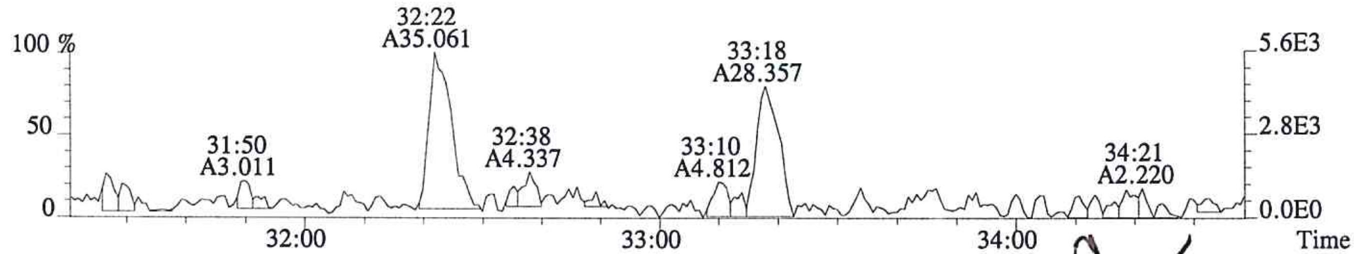
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



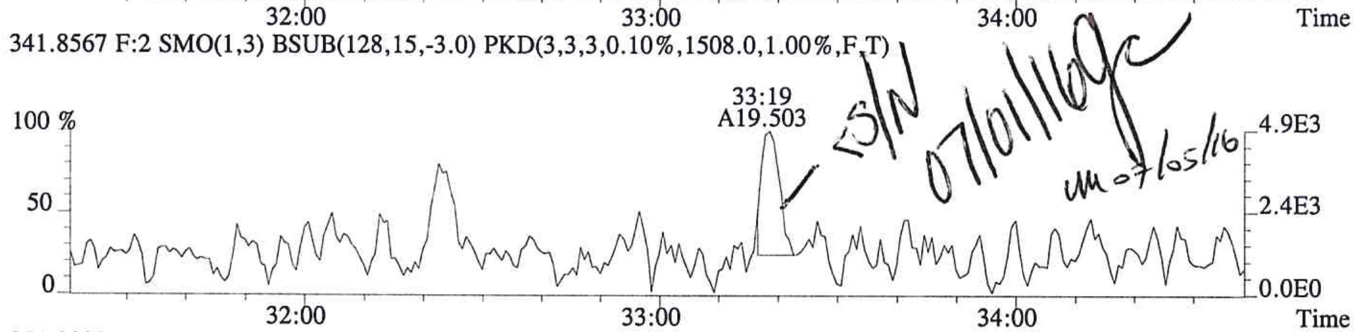
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



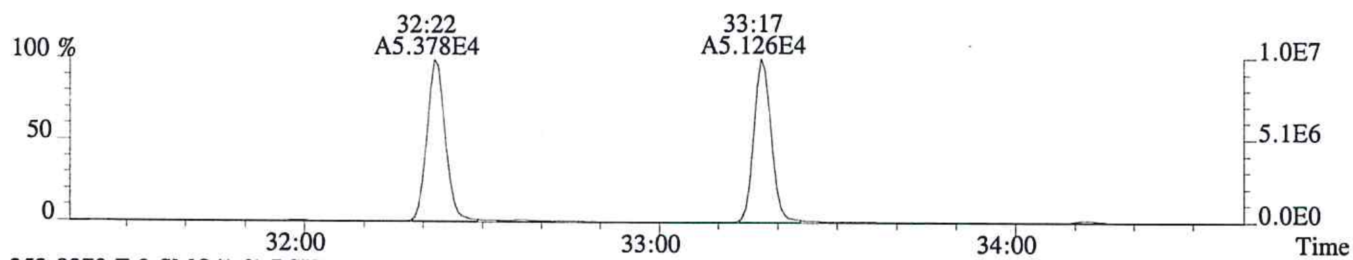
File:P603996 #1-298 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



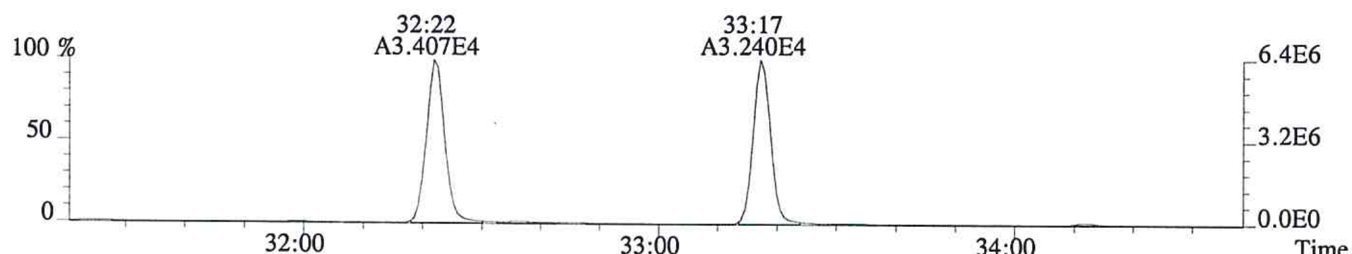
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



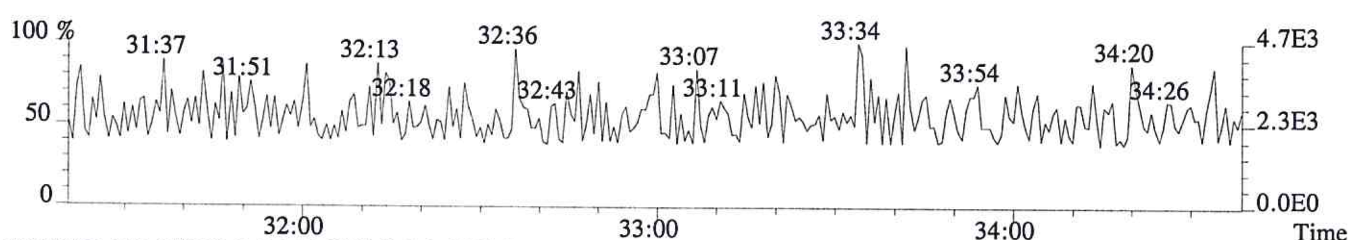
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7456.0,1.00%,F,T)



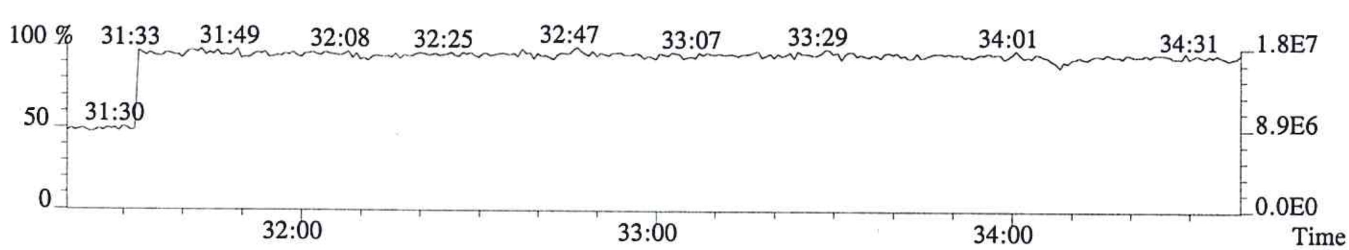
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5756.0,1.00%,F,T)



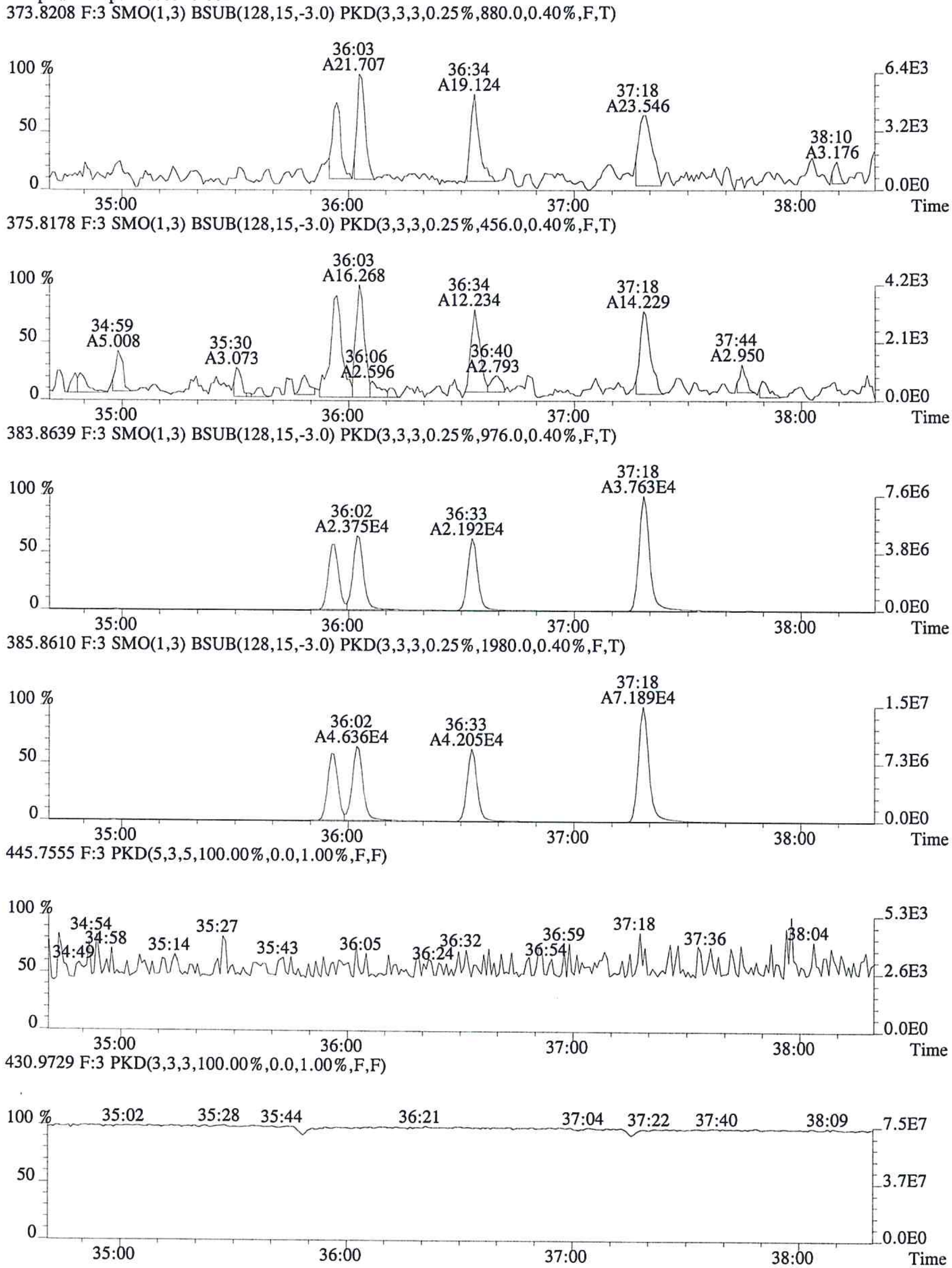
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



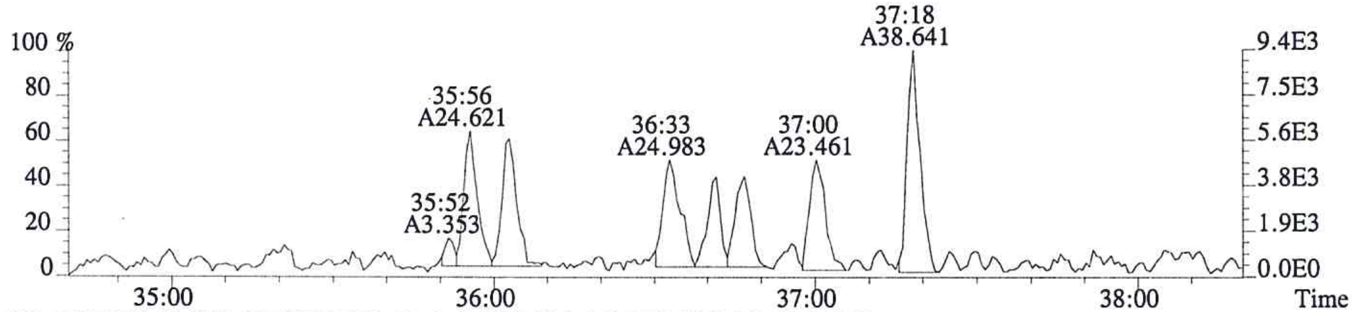
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



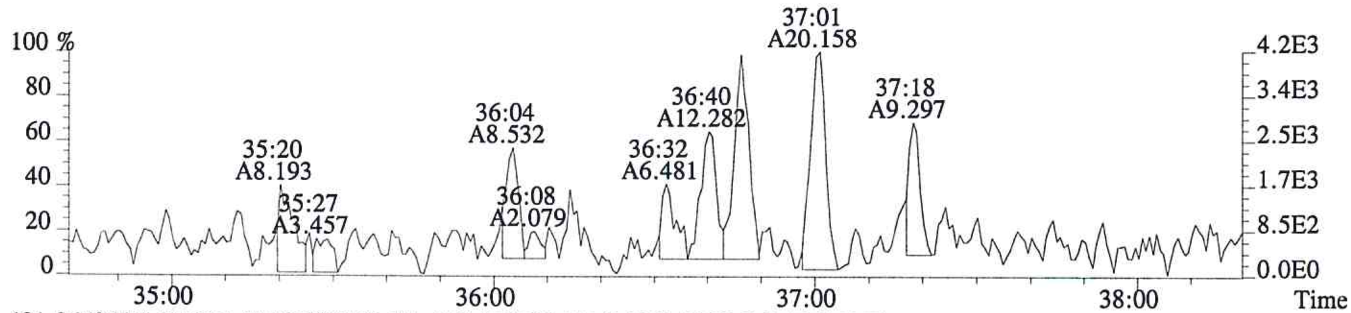
File:P603996 #1-329 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002



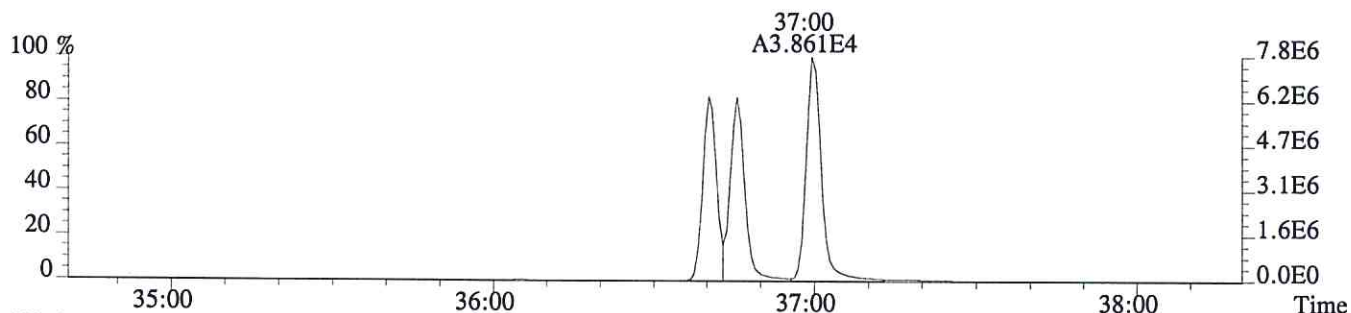
File:P603996 #1-329 Acq:25-JUN-2016 22:15:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



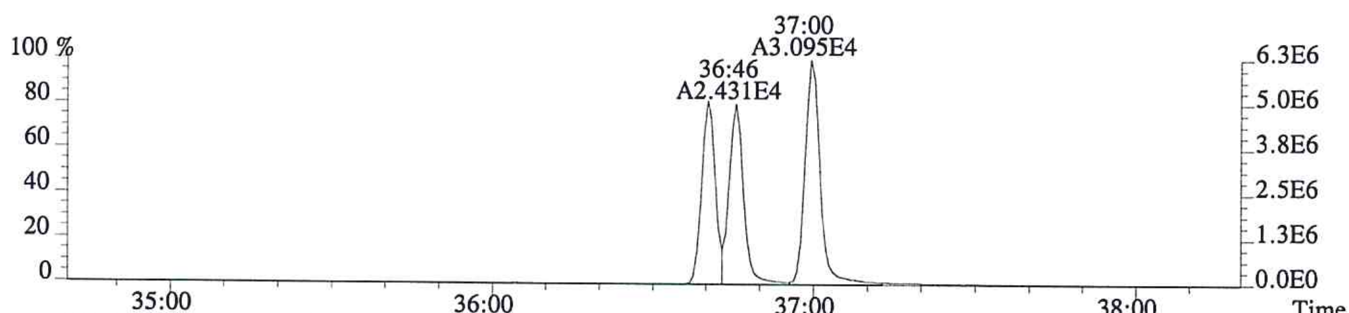
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



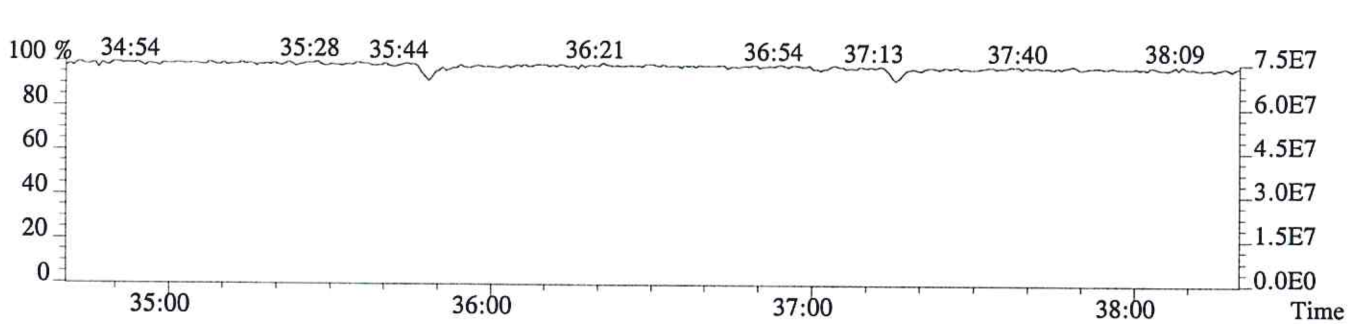
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW2

Run #12 Filename P603997 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:04:16
Processed: 1-JUL-16 12:44:38 Sample ID: E1600326-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.231e+04	4.018e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	4.970e+04	3.103e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.786e+04	2.994e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.480e+04	6.727e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.423e+04	3.062e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.052e+04	3.826e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.787e+04	2.955e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	9.640e+01				no	0.945

EDL
TCDD = (1.30e+03 + 1.12e+03) x 2000 pg 1 x 2.5 / (~~2.423e+04~~ + ~~3.062e+04~~) x 1.0 g x 100/ x 1.048 = 1.08 ng/kg
(4.71e+06 + 5.97e+06)
UM 07/05/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW2

Run #12 Filename P603997 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:04:16
Processed: 1-JUL-16 12:44:38 LAB. ID: E1600326-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.04e+02	*	*	2.75e+03	*
3	2,3,4,7,8-PeCDF	*	7.40e+02	*	*	1.69e+03	*
11	2,3,7,8-TCDD	*	1.30e+03	*	*	1.12e+03	*
18	13C-2,3,7,8-TCDF	5.85e+06	4.06e+03	1.4e+03	7.29e+06	3.42e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	9.24e+06	5.38e+03	1.7e+03	5.80e+06	4.14e+03	1.4e+03
20	13C-2,3,4,7,8-PeCDF	9.55e+06	5.38e+03	1.8e+03	5.99e+06	4.14e+03	1.4e+03
24	13C-1,2,3,7,8,9-HxCDF	7.16e+06	9.24e+02	7.7e+03	1.38e+07	1.39e+03	9.9e+03
26	13C-1,2,3,4-TCDF	*	4.06e+03	*	*	3.42e+03	*
27	13C-2,3,7,8-TCDD	4.71e+06	7.71e+03	6.1e+02	5.97e+06	4.52e+03	1.3e+03
33	13C-1,2,3,4-TCDD	5.80e+06	7.71e+03	7.5e+02	7.27e+06	4.52e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	7.71e+06	2.28e+03	3.4e+03	6.03e+06	1.51e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	1.99e+04	1.77e+03	1.1e+01			

ALS ENVIRONMENTAL
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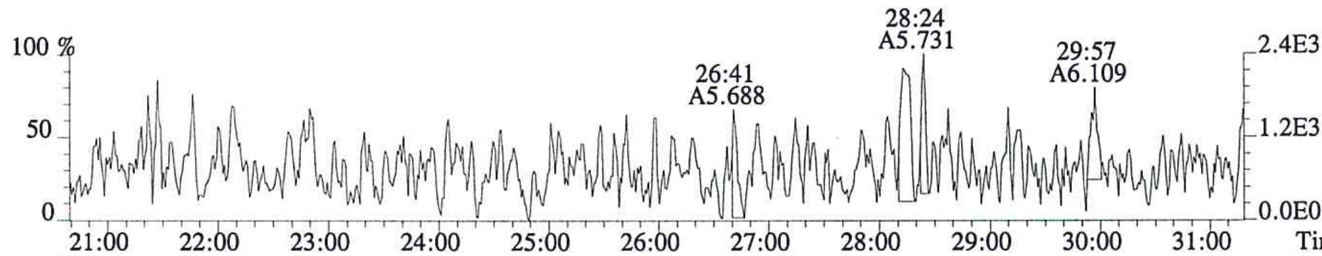
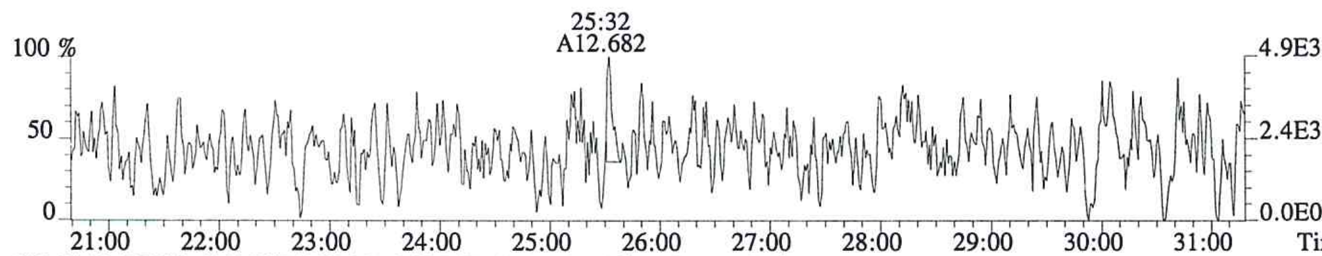
www.alsglobal.com

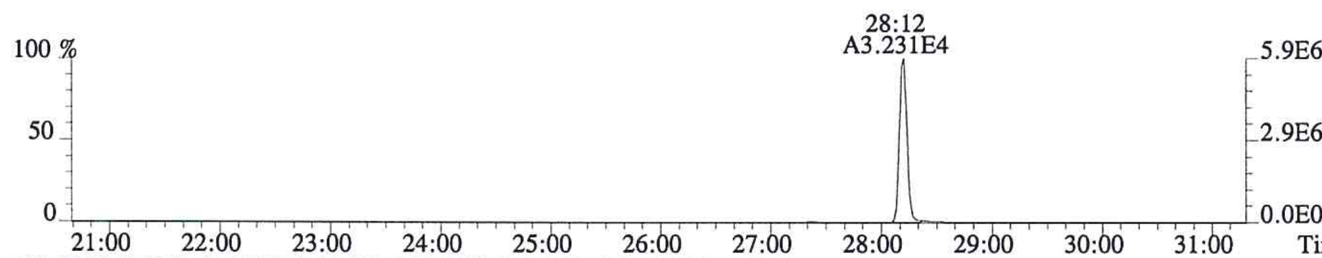
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



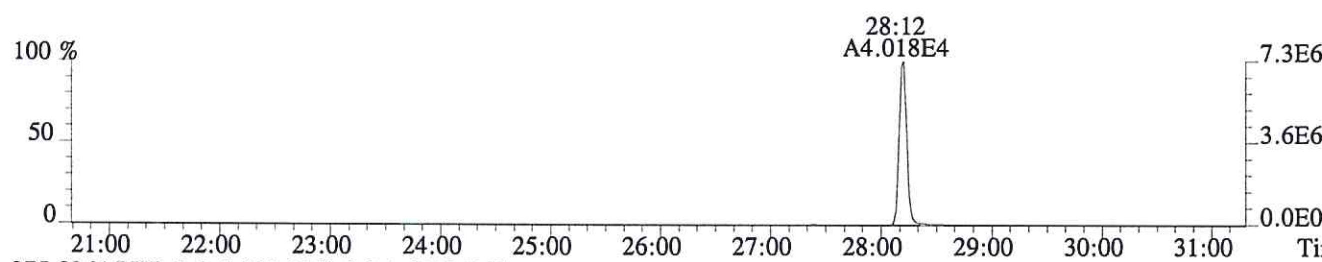
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2752.0,1.00%,F,T)



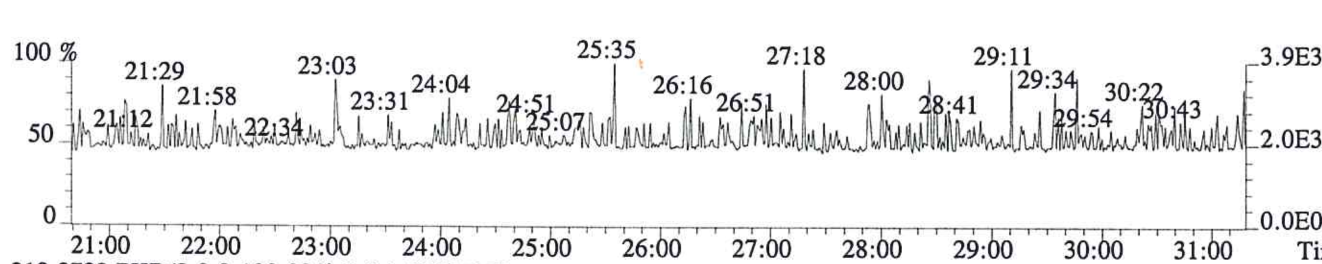
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4060.0,1.00%,F,T)



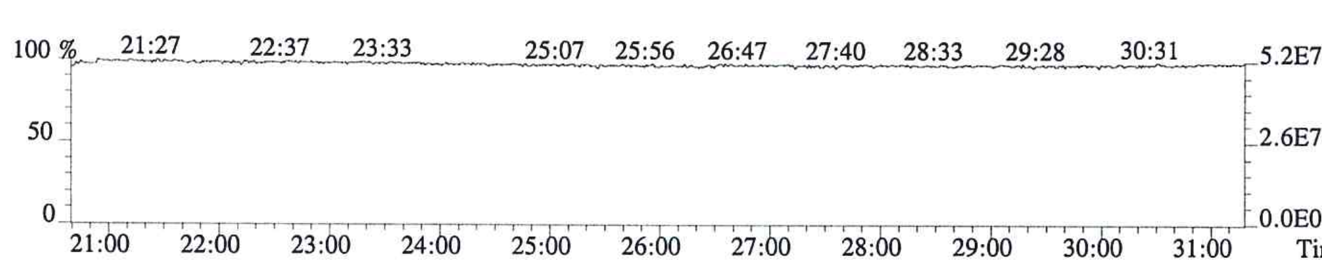
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3420.0,1.00%,F,T)



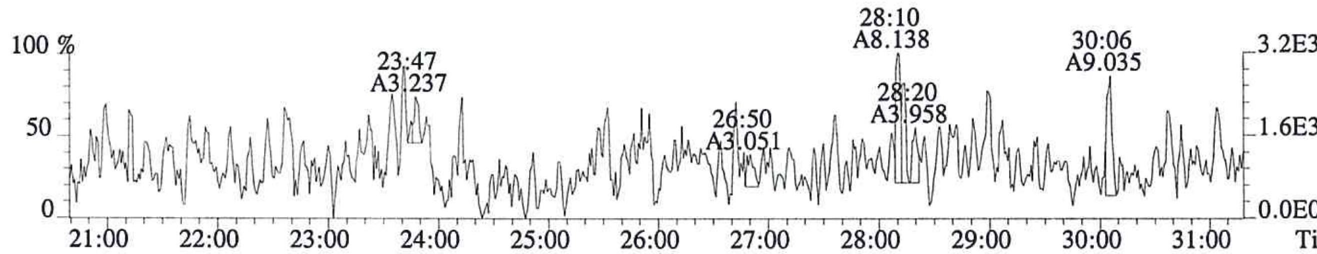
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



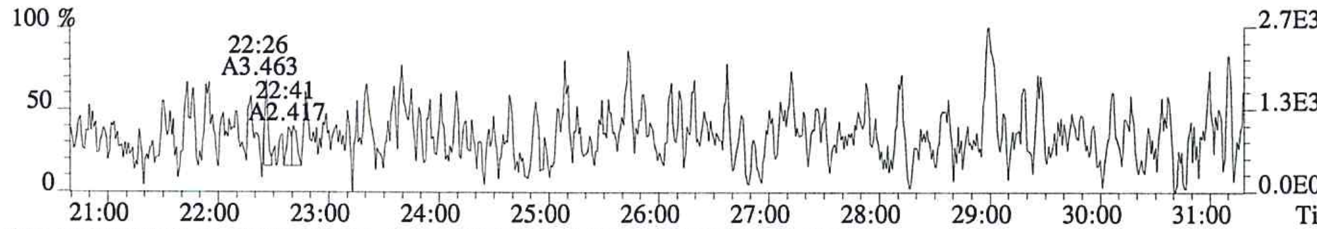
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



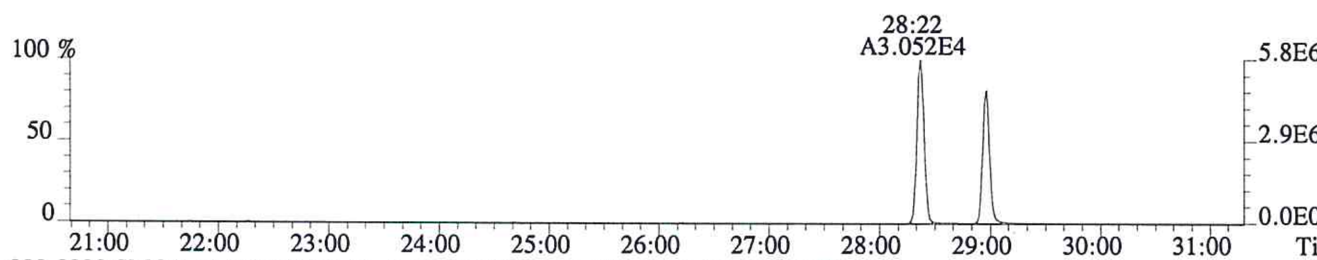
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



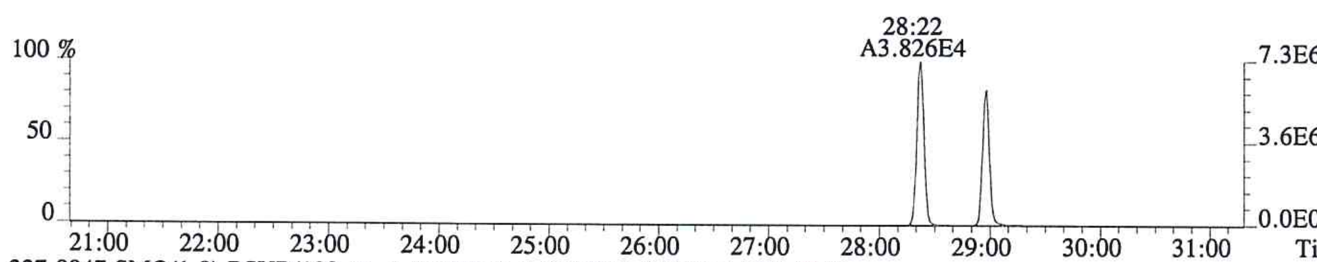
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



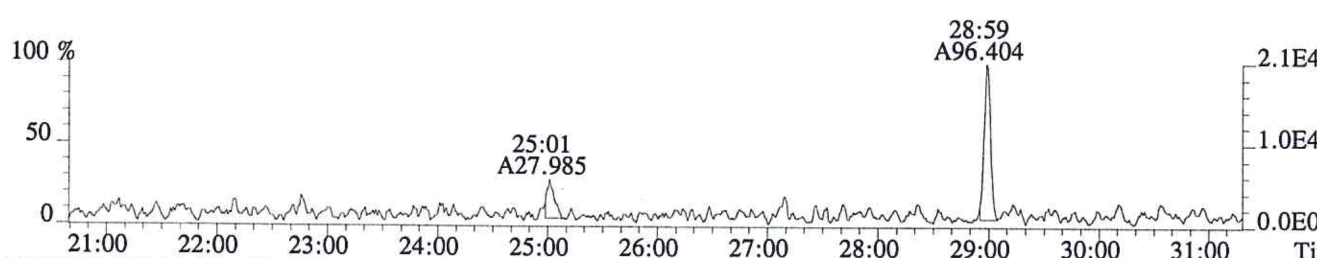
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7708.0,1.00%,F,T)



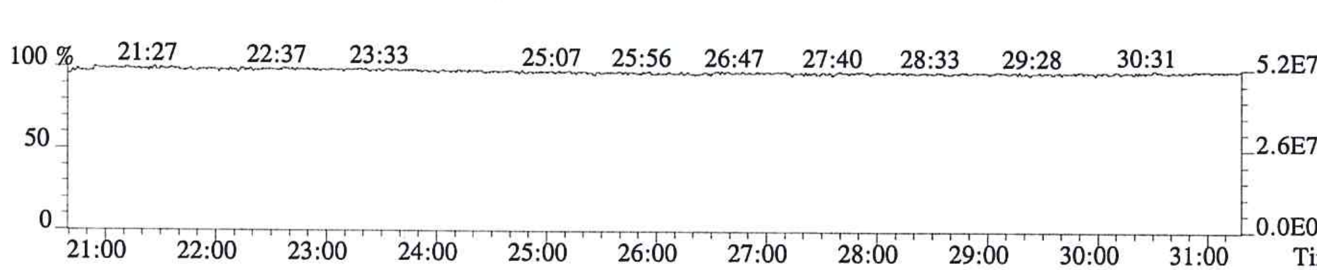
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4520.0,1.00%,F,T)



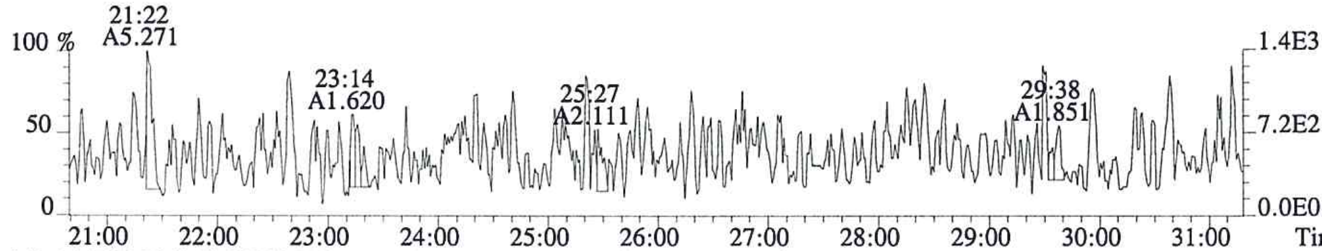
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



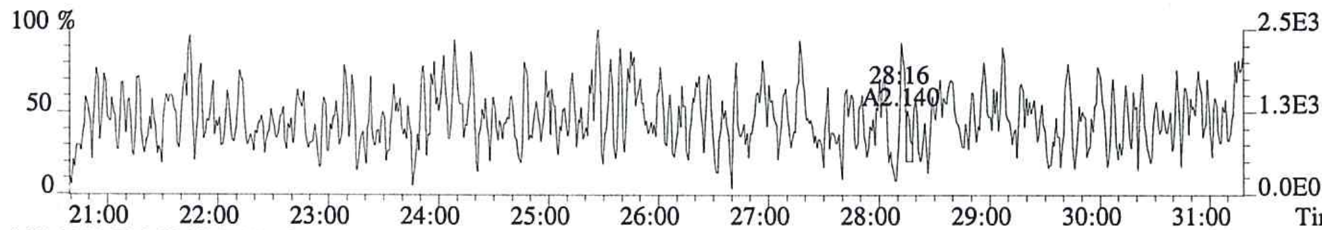
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



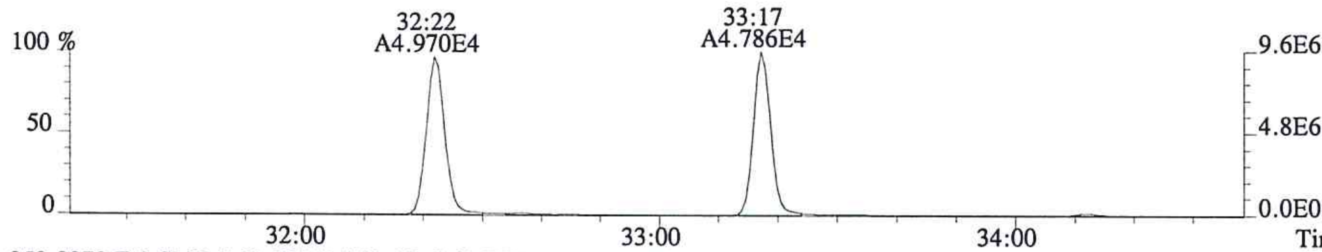
File:P603997 #1-756 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



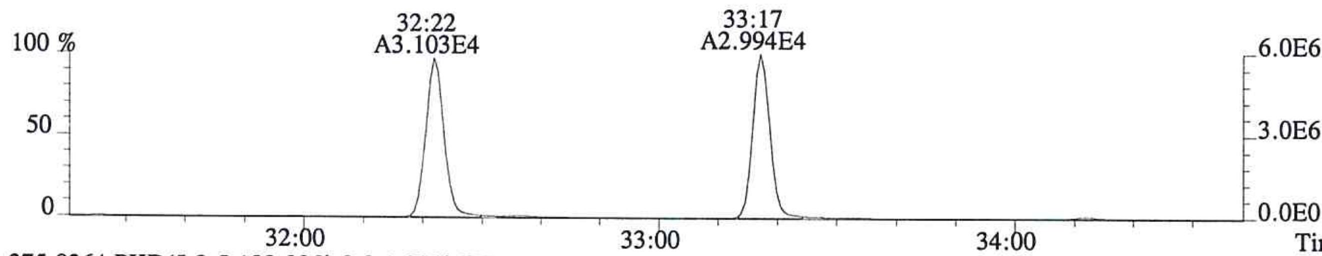
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



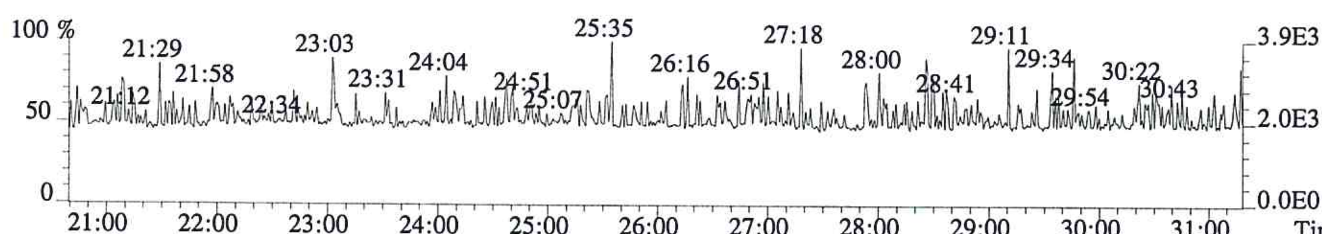
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5376.0,1.00%,F,T)



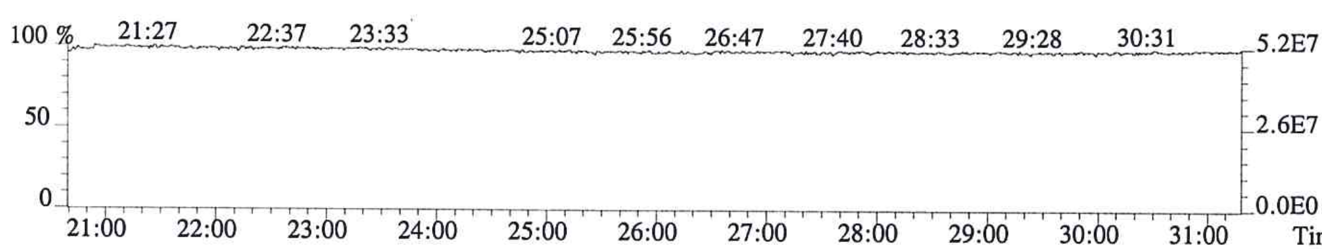
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



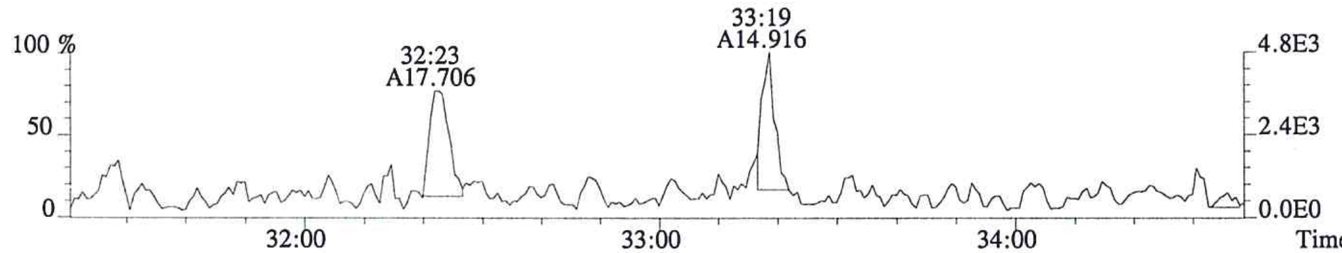
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



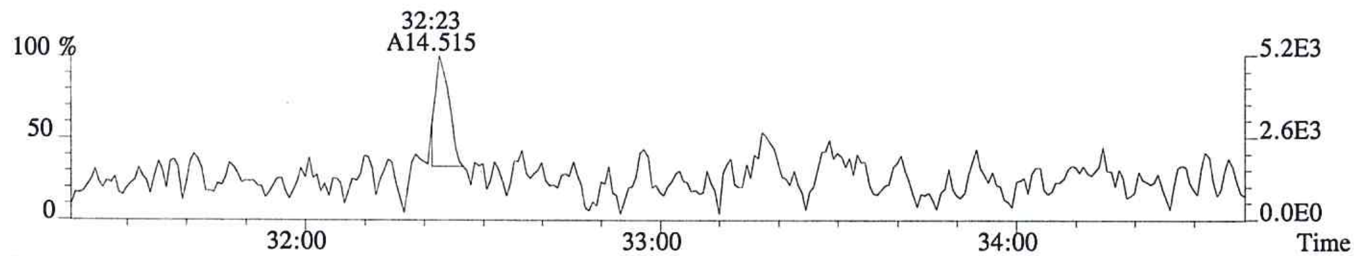
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



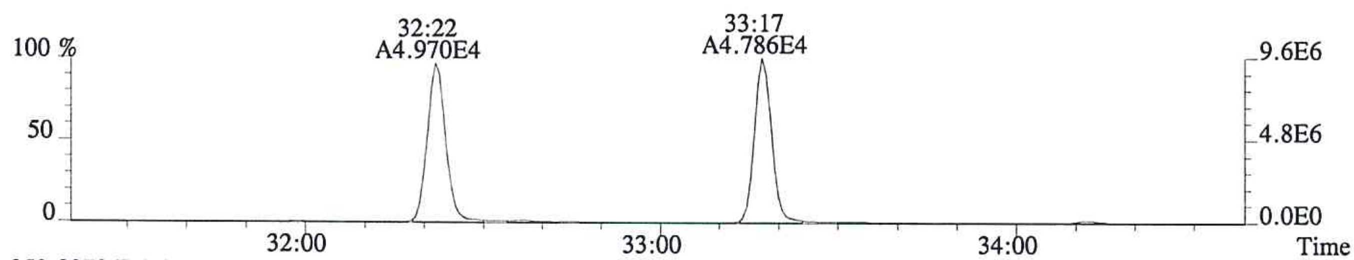
File:P603997 #1-298 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



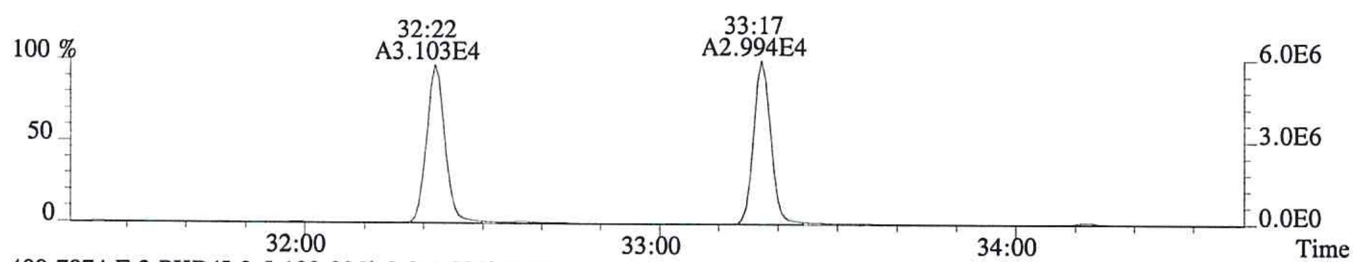
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



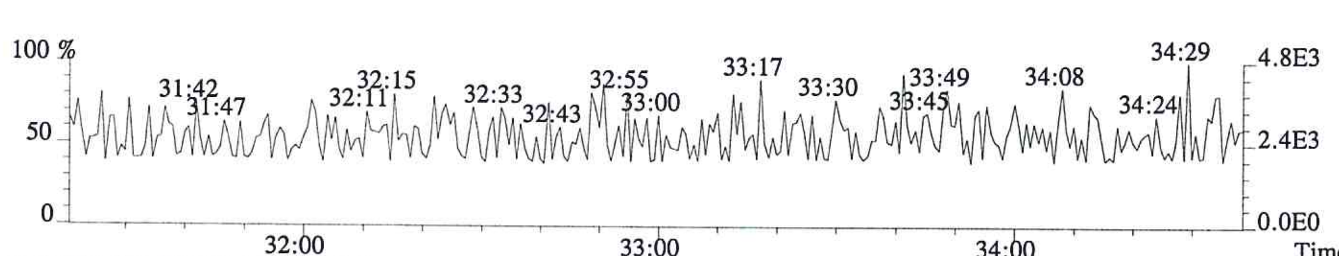
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5376.0,1.00%,F,T)



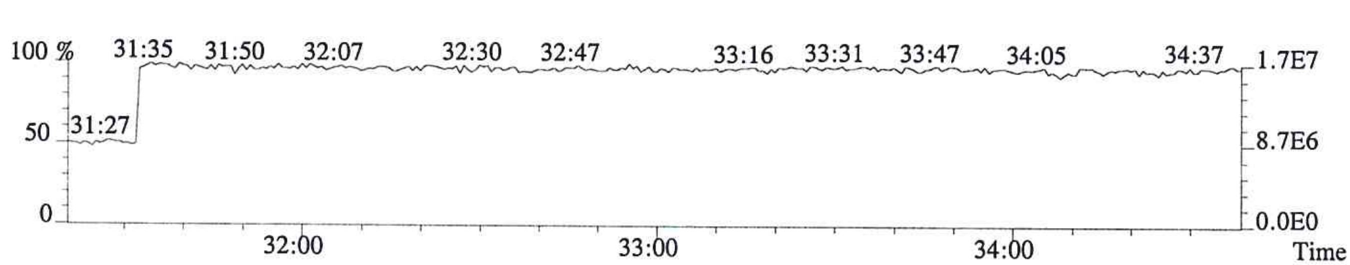
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



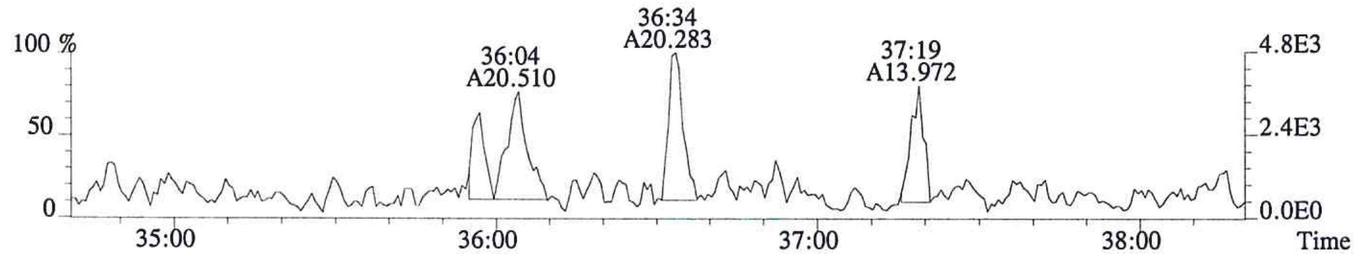
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



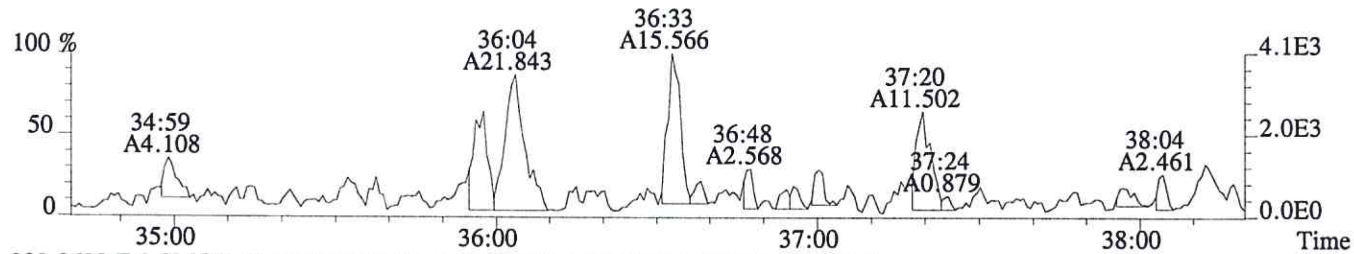
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



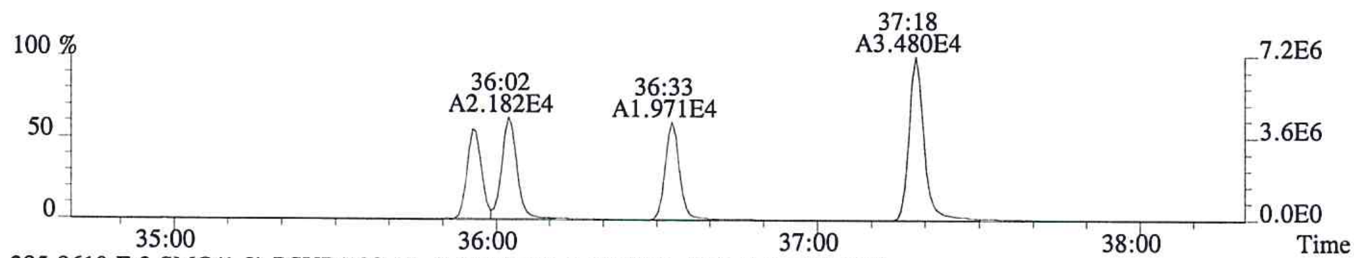
File:P603997 #1-329 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



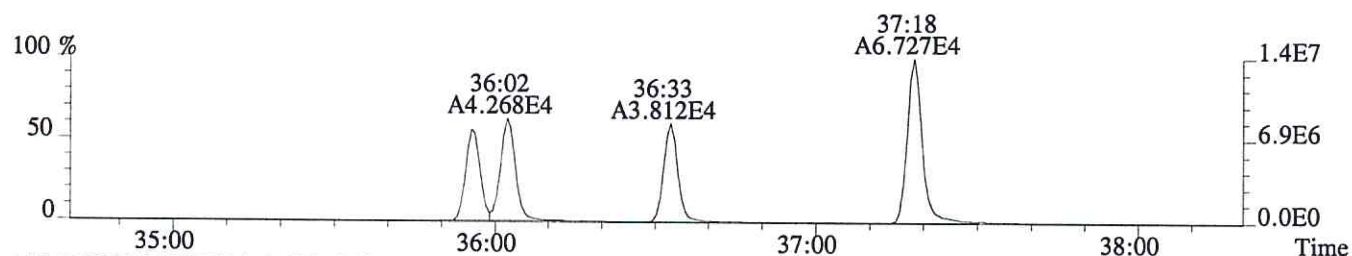
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



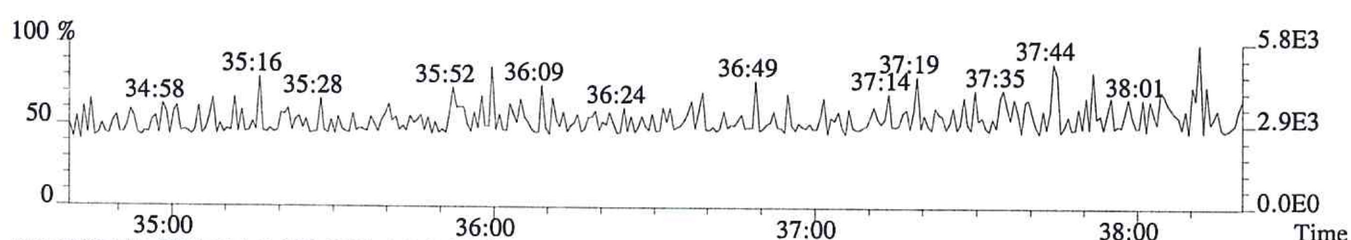
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



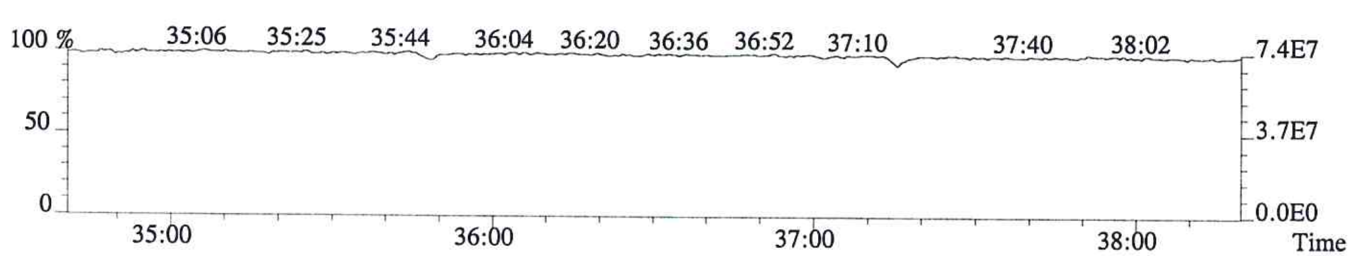
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



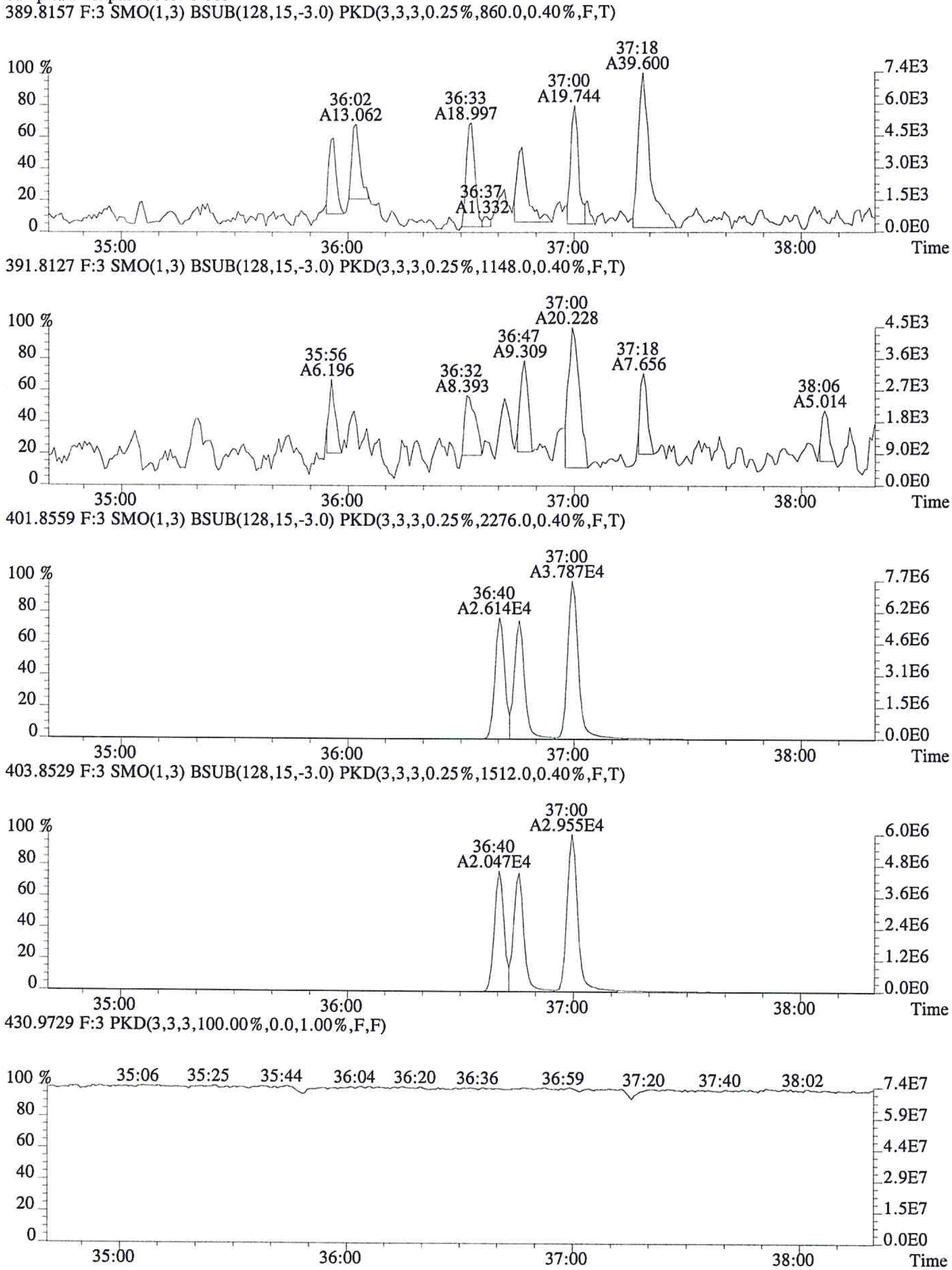
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P603997 #1-329 Acq:25-JUN-2016 23:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-003



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW10

Run #13 Filename P603998 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:53:17
Processed: 1-JUL-16 13:08:58 Sample ID: E1600326-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.359e+04	1.695e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	2.408e+04	1.495e+04	1.61	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.256e+03	2.706e+03	1.57	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.685e+04	3.265e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	3.955e+03	5.107e+03	0.77	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	9.323e+03	1.181e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.924e+04	3.647e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.441e+04	2.686e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	2.822e+03				no	0.945

EDL
(1.25e+03 + 1.40e+03) x ~~2000~~ 1000 pg 1 x 2.5
TCDD = -- = 1.59 ng/kg
(~~9.323e+03~~ + ~~1.181e+04~~) x 1.0 g x 100 / x 1.048
(1.75e+06 + 2.21e+06)
LW 07/06/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW10

Run #13 Filename P603998 Samp: 1 Inj: 1 Acquired: 25-JUN-16 23:53:17
Processed: 1-JUL-16 13:08:58 LAB. ID: E1600326-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.20e+02	*	*	3.03e+03	*
3	2,3,4,7,8-PeCDF	*	9.12e+02	*	*	1.63e+03	*
11	2,3,7,8-TCDD	*	1.25e+03	*	*	1.40e+03	*
18	13C-2,3,7,8-TCDF	2.42e+06	4.94e+03	4.9e+02	3.02e+06	3.40e+03	8.9e+02
19	13C-1,2,3,7,8-PeCDF	4.49e+06	3.21e+03	1.4e+03	2.78e+06	2.63e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	8.20e+05	3.21e+03	2.6e+02	5.18e+05	2.63e+03	2.0e+02
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	1.14e+03	2.9e+03	6.41e+06	1.91e+03	3.4e+03
26	13C-1,2,3,4-TCDF	6.63e+05	4.94e+03	1.3e+02	8.43e+05	3.40e+03	2.5e+02
27	13C-2,3,7,8-TCDD	1.75e+06	6.93e+03	2.5e+02	2.21e+06	2.89e+03	7.7e+02
33	13C-1,2,3,4-TCDD	5.39e+06	6.93e+03	7.8e+02	6.68e+06	2.89e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	7.10e+06	2.29e+03	3.1e+03	5.66e+06	1.40e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	5.35e+05	1.36e+03	3.9e+02			

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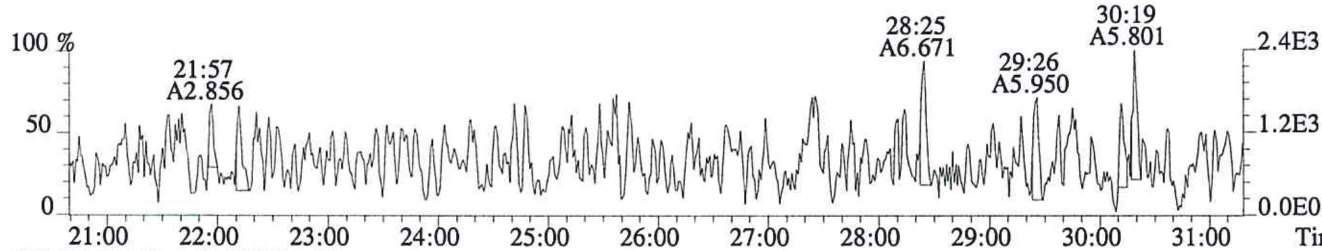
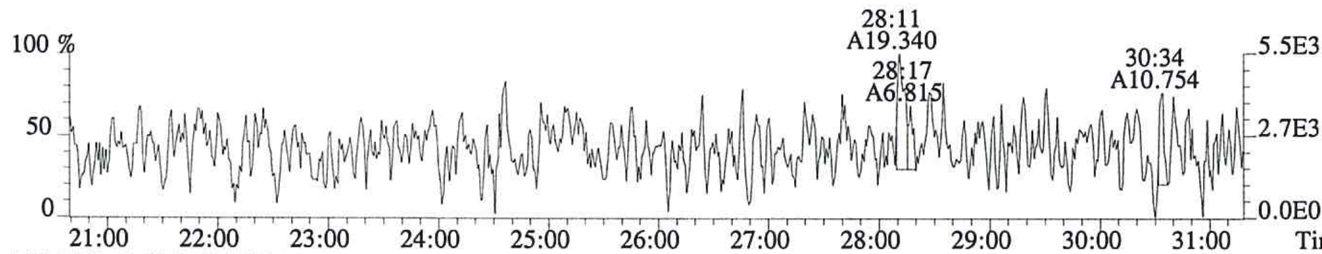
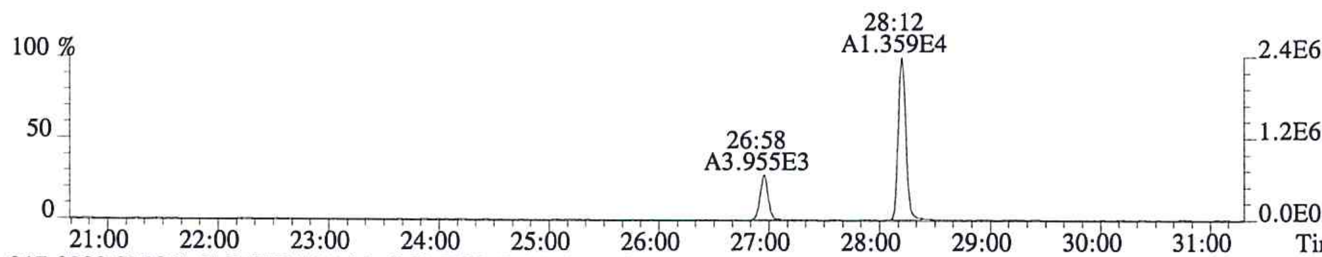
File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



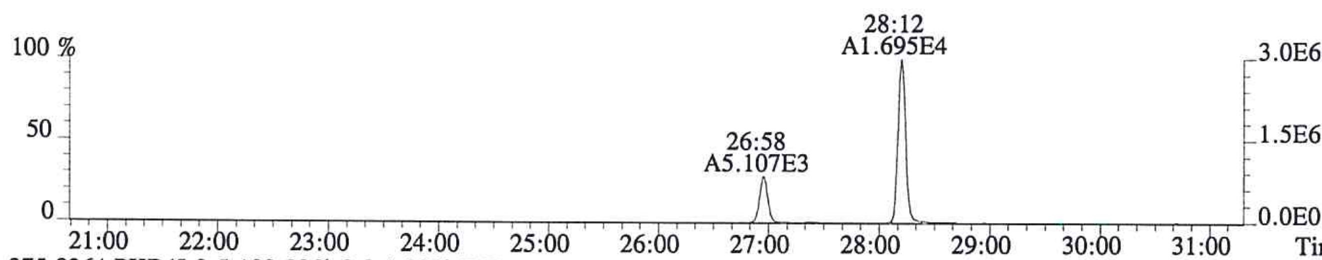
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3028.0,1.00%,F,T)



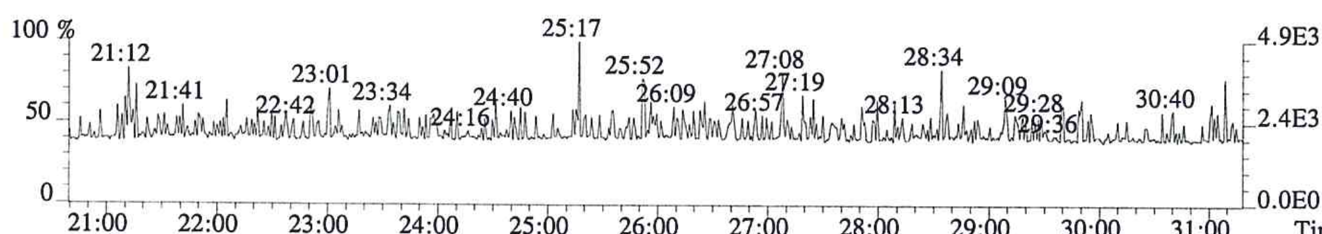
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4940.0,1.00%,F,T)



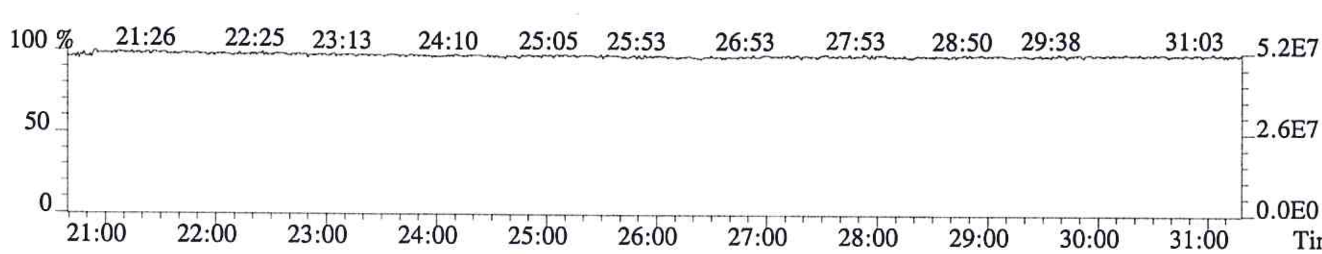
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



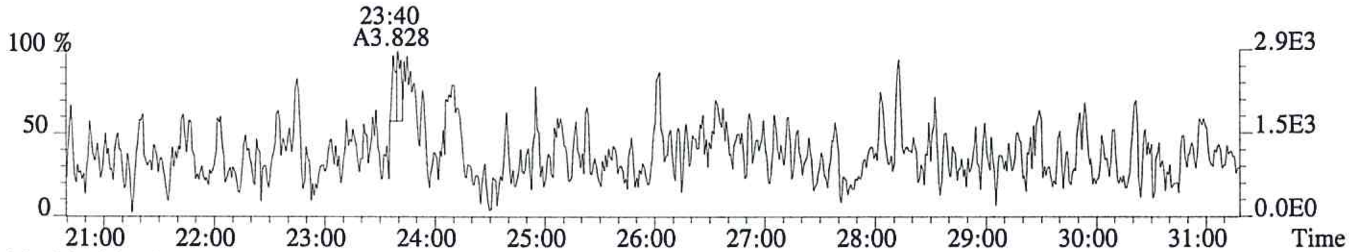
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



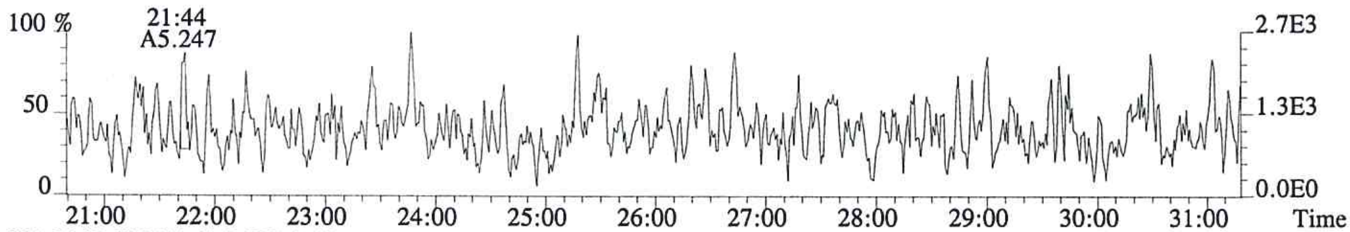
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



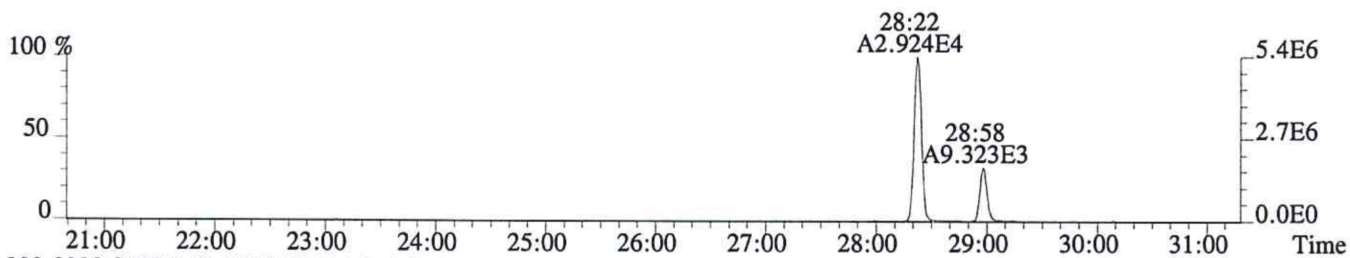
File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



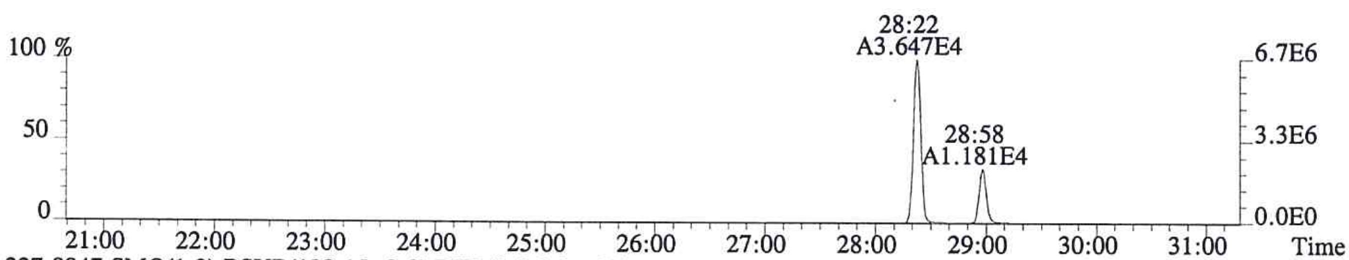
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



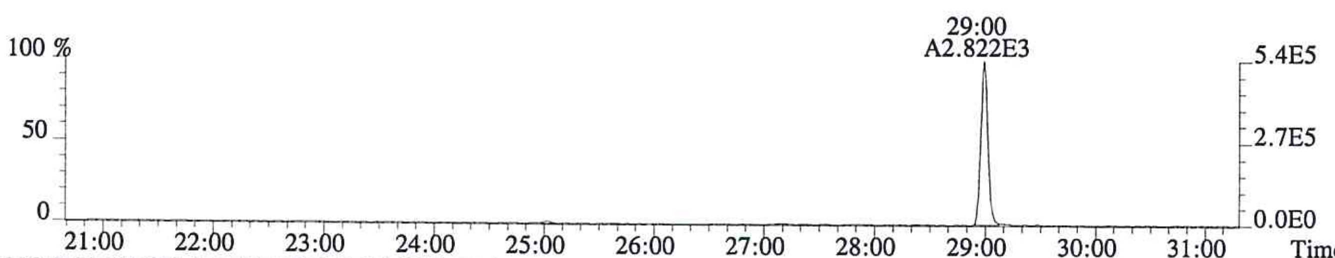
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6928.0,1.00%,F,T)



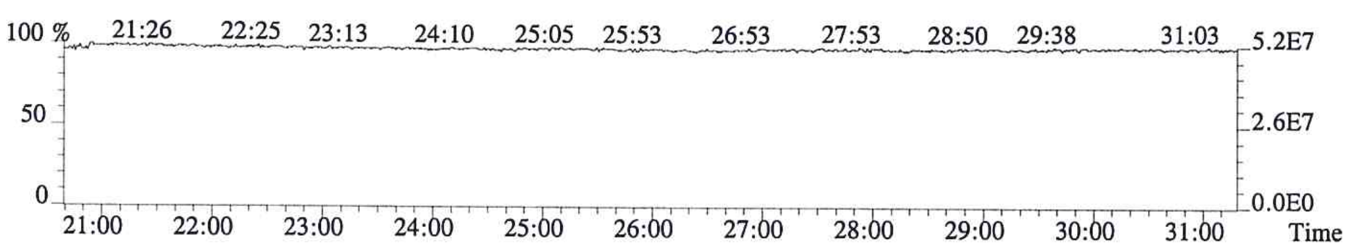
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2892.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)

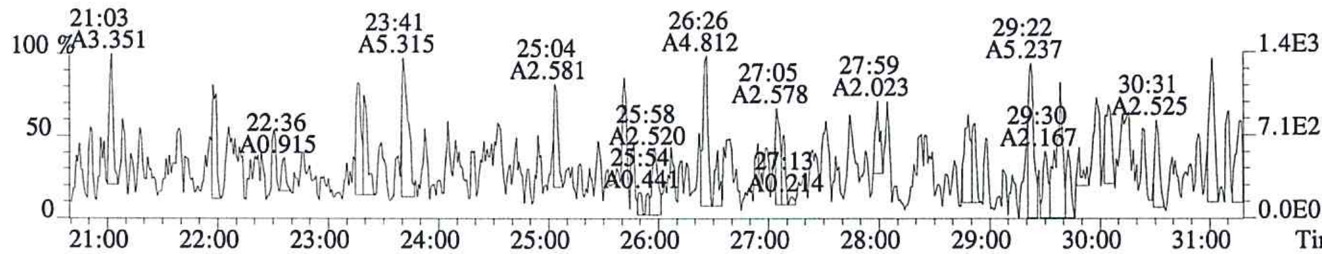


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

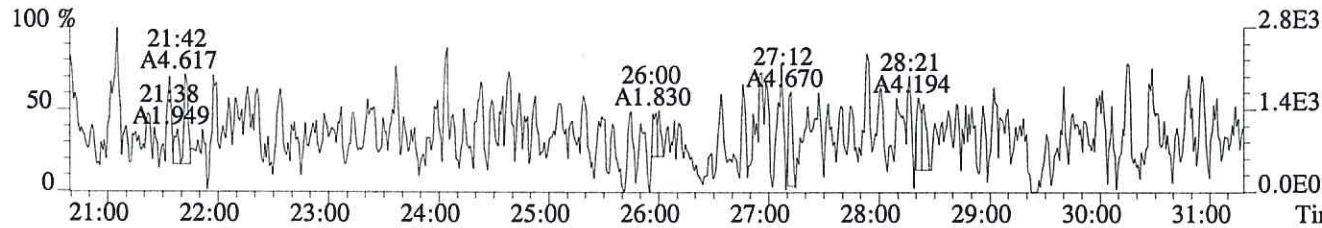


File:P603998 #1-756 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004

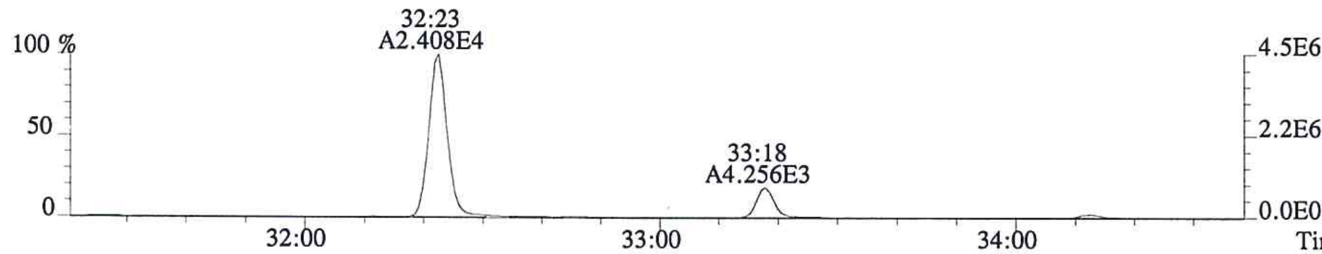
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



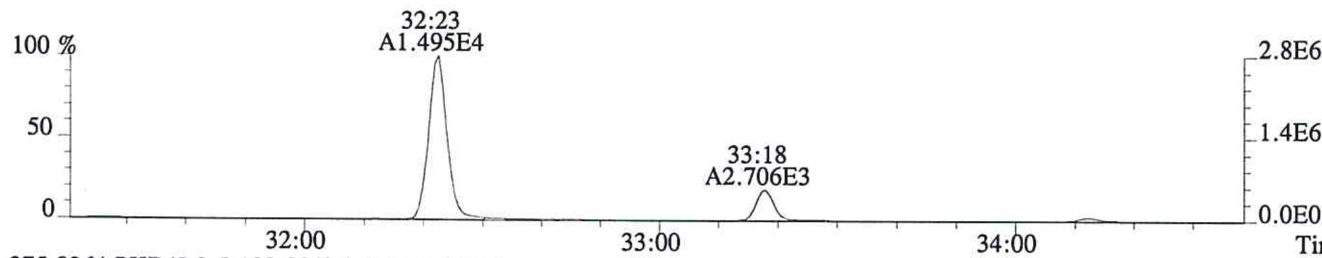
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



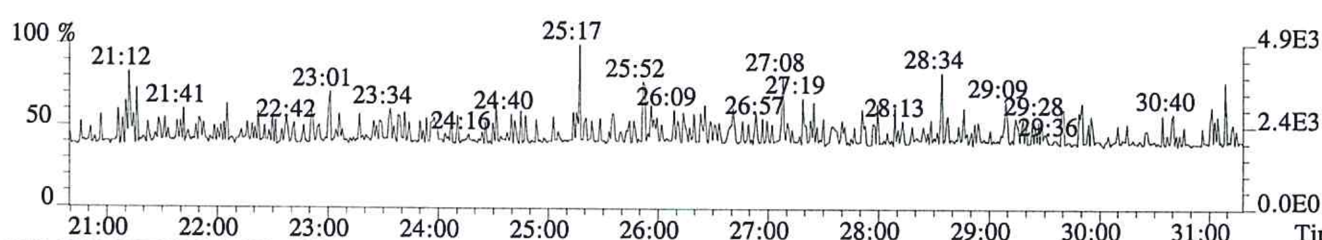
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



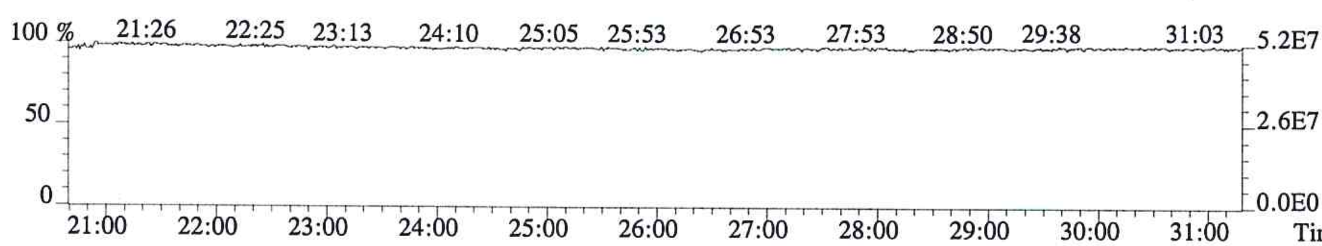
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

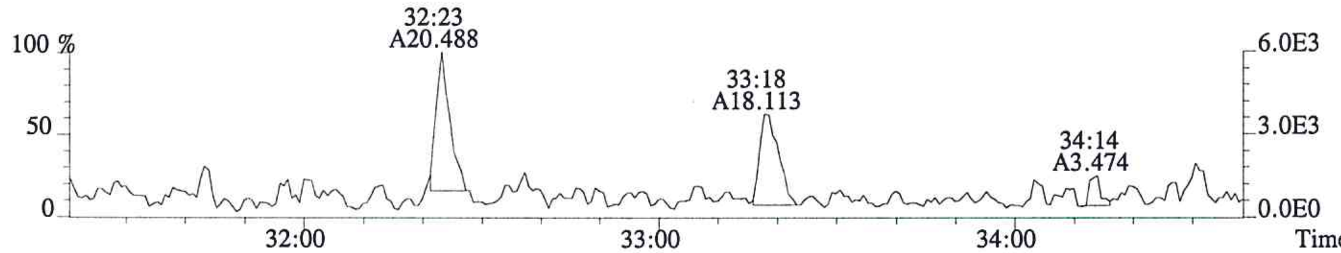


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

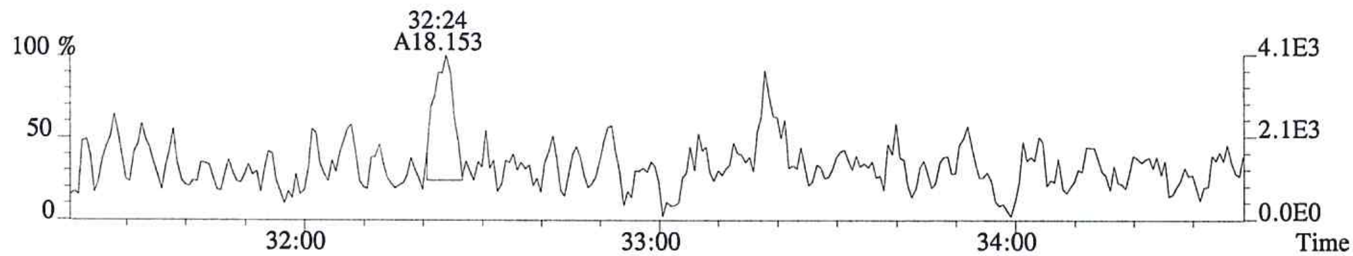


File:P603998 #1-298 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004

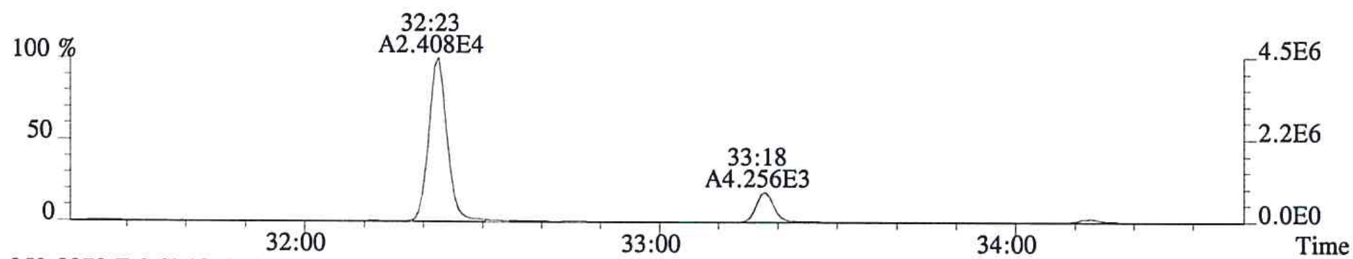
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



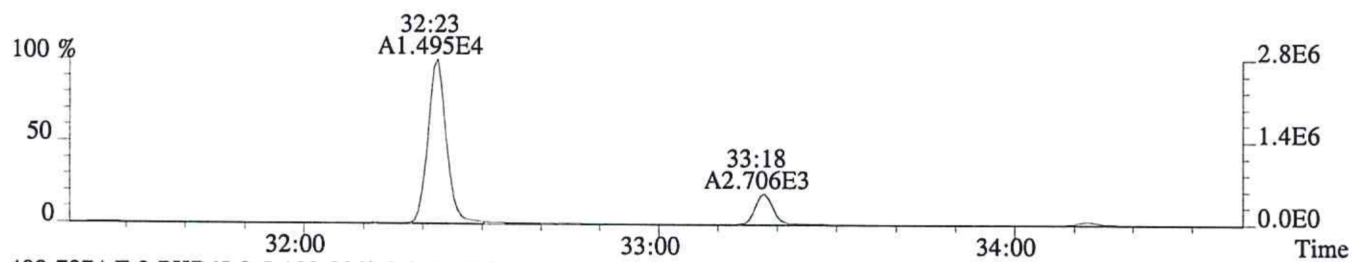
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



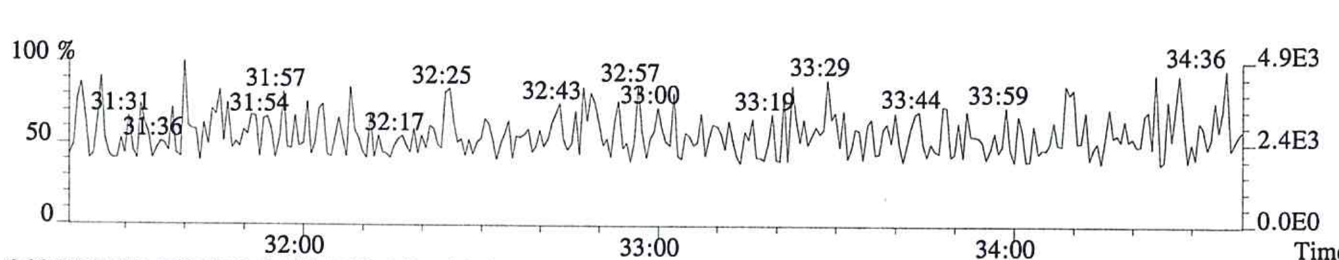
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



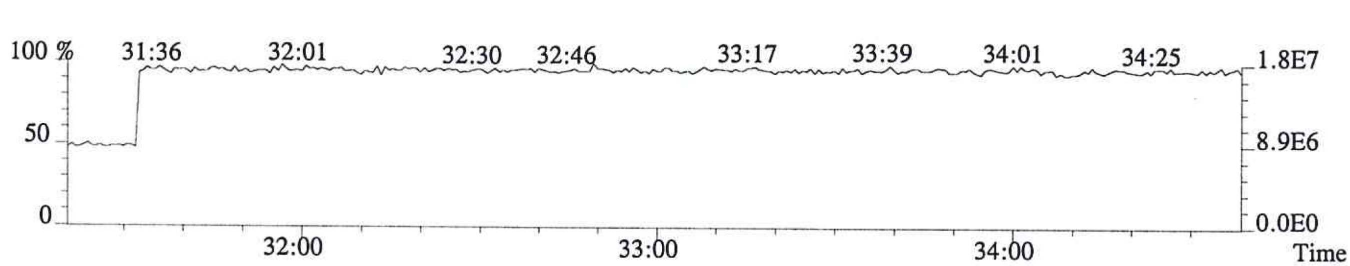
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



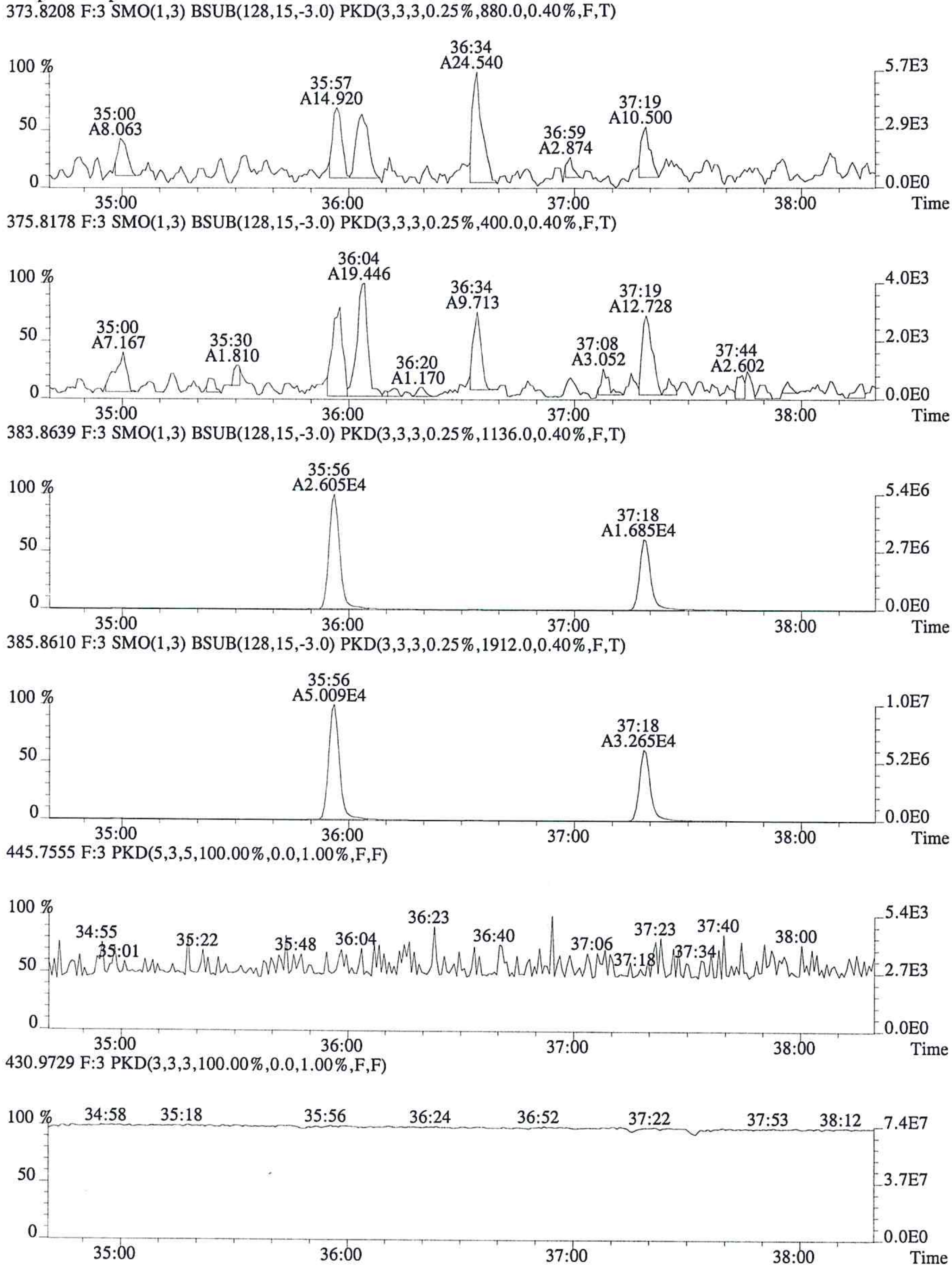
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

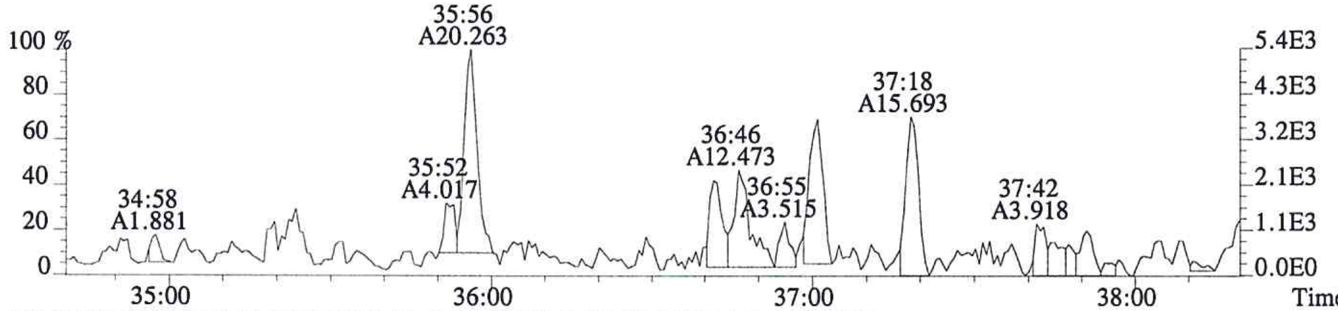


File:P603998 #1-329 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004

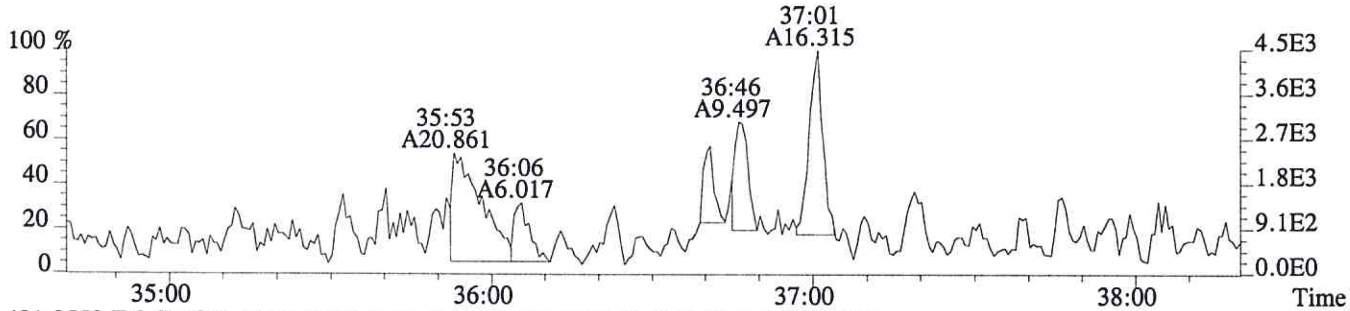


File:P603998 #1-329 Acq:25-JUN-2016 23:53:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-004

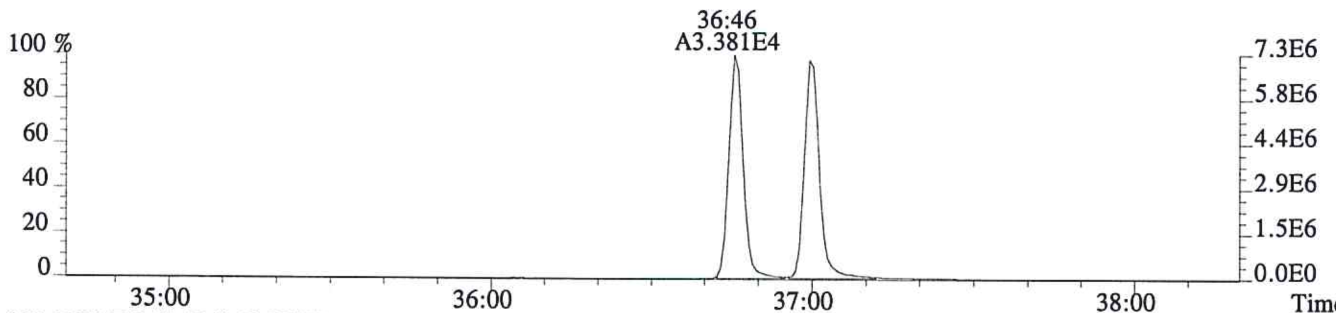
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



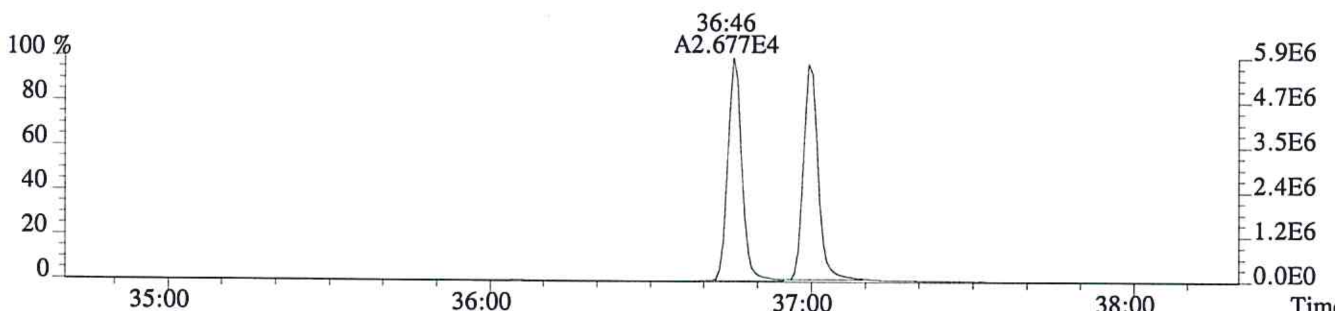
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



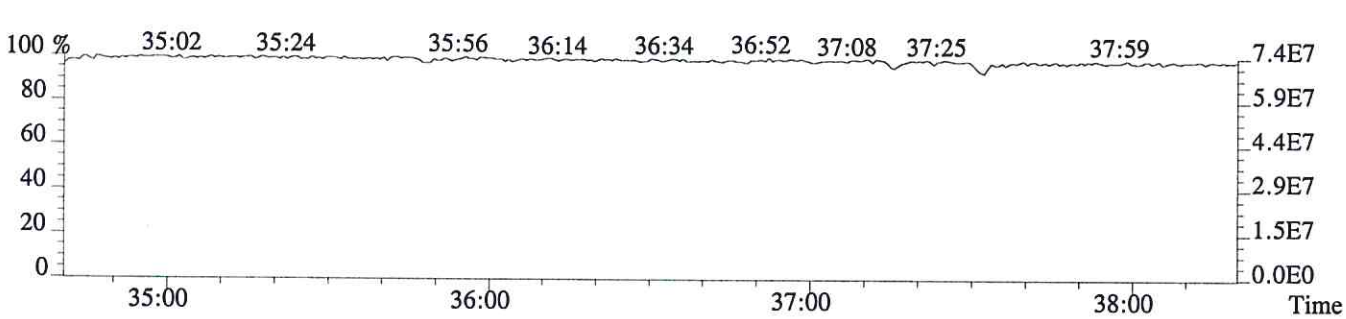
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2292.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW11

Run #14 Filename P603999 Samp: 1 Inj: 1 Acquired: 26-JUN-16 00:42:18
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.162e+04	1.459e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.080e+04	1.302e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	3.797e+03	2.344e+03	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.588e+04	3.078e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	3.516e+03	4.443e+03	0.79	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	8.145e+03	1.038e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.967e+04	3.712e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.444e+04	2.709e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	2.498e+03				no	0.945

EDL (1.02e+03 + 1.50e+03) x 1000 pg 1 x2.5
TCDD = -- = 1.707 ng/kg
(~~8.145e+03~~ + ~~1.038e+04~~) x 1.0 g x 100 / x 1.048
(1.55e+06 + 1.97e+06)

UN 07/06/16

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Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW11

Run #14 Filename P603999 Samp: 1 Inj: 1 Acquired: 26-JUN-16 00:42:18
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.06e+03	*	*	3.26e+03	*
3	2,3,4,7,8-PeCDF	*	7.08e+02	*	*	1.71e+03	*
11	2,3,7,8-TCDD	*	1.02e+03	*	*	1.50e+03	*
18	13C-2,3,7,8-TCDF	2.08e+06	4.30e+03	4.9e+02	2.61e+06	2.58e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	3.85e+06	3.39e+03	1.1e+03	2.42e+06	1.28e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	7.09e+05	3.39e+03	2.1e+02	4.57e+05	1.28e+03	3.6e+02
24	13C-1,2,3,7,8,9-HxCDF	3.15e+06	8.80e+02	3.6e+03	6.03e+06	2.00e+03	3.0e+03
26	13C-1,2,3,4-TCDF	5.92e+05	4.30e+03	1.4e+02	7.52e+05	2.58e+03	2.9e+02
27	13C-2,3,7,8-TCDD	1.55e+06	7.41e+03	2.1e+02	1.97e+06	3.82e+03	5.2e+02
33	13C-1,2,3,4-TCDD	5.65e+06	7.41e+03	7.6e+02	7.02e+06	3.82e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.28e+06	1.40e+03	5.2e+03	5.70e+06	1.37e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	4.57e+05	2.10e+03	2.2e+02			

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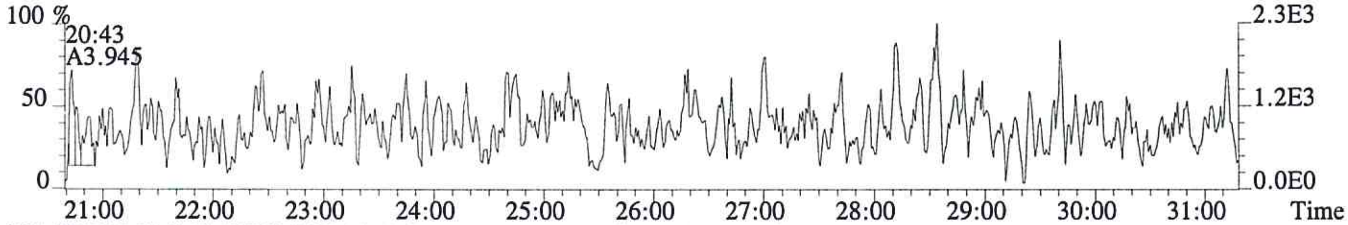
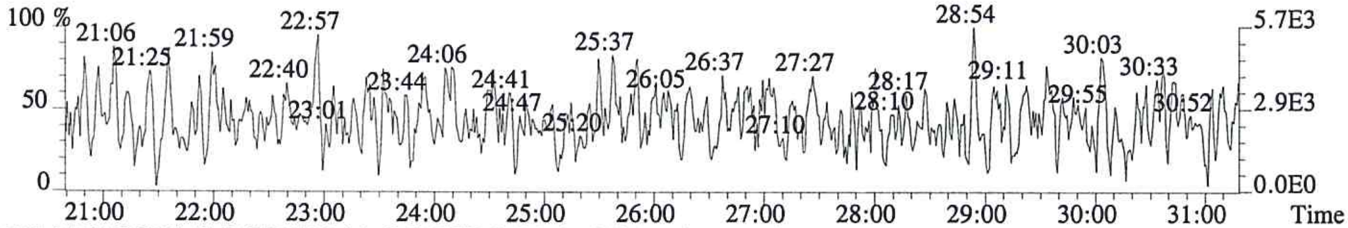
File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005

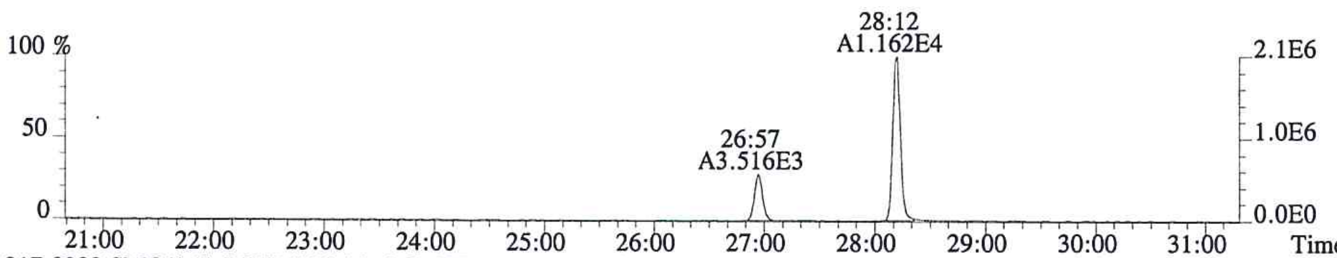
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



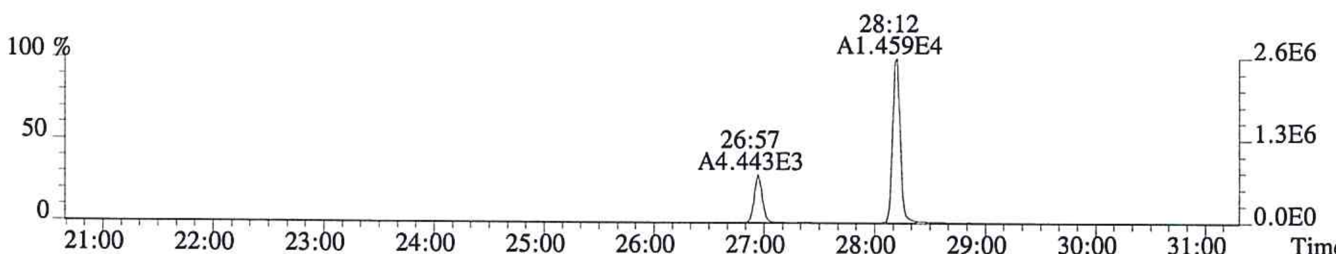
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



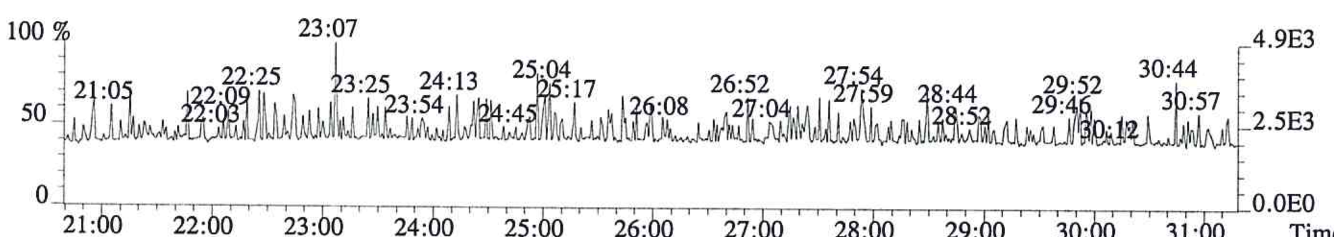
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4296.0,1.00%,F,T)



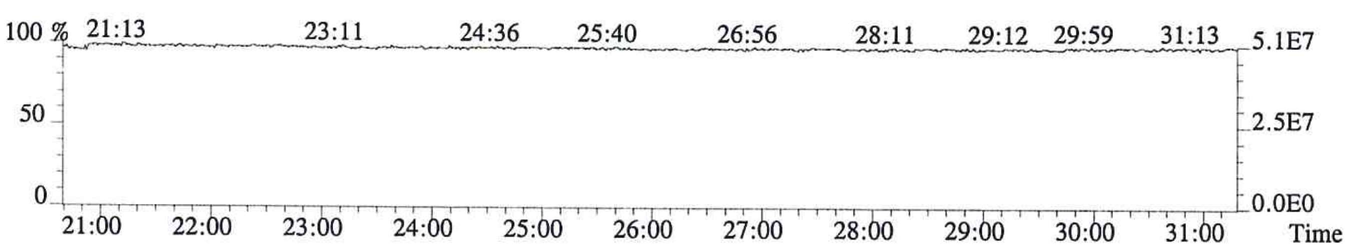
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



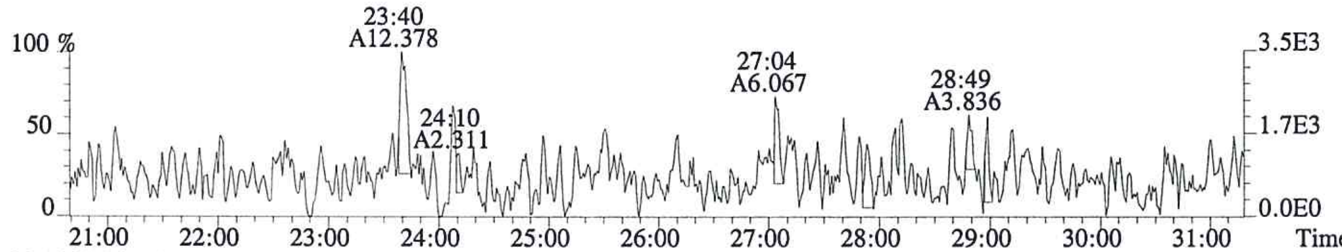
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



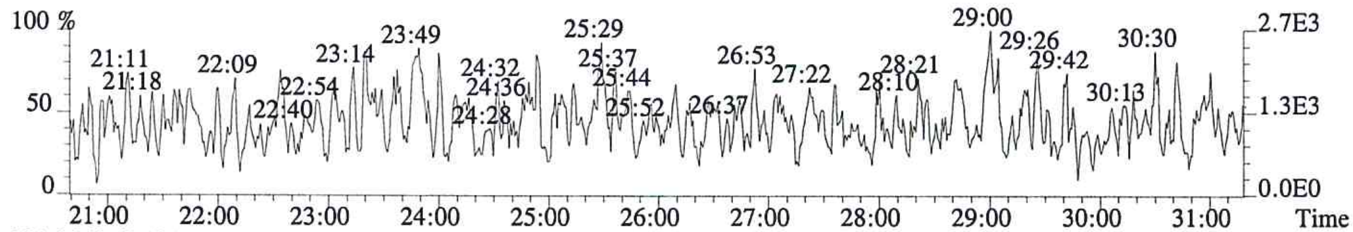
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



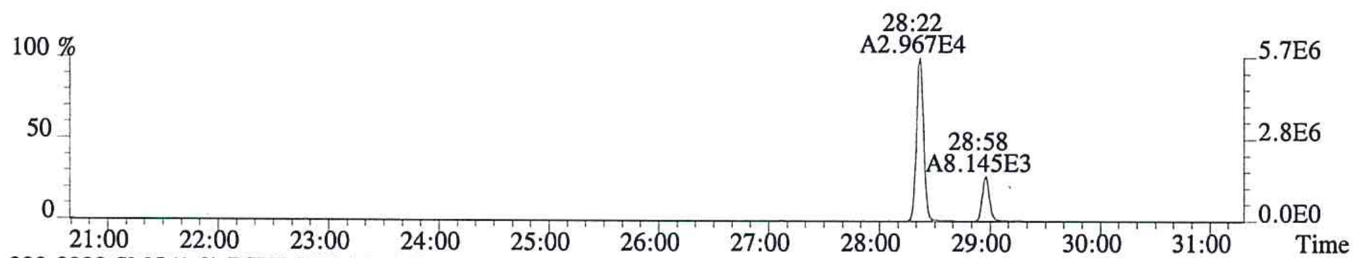
File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



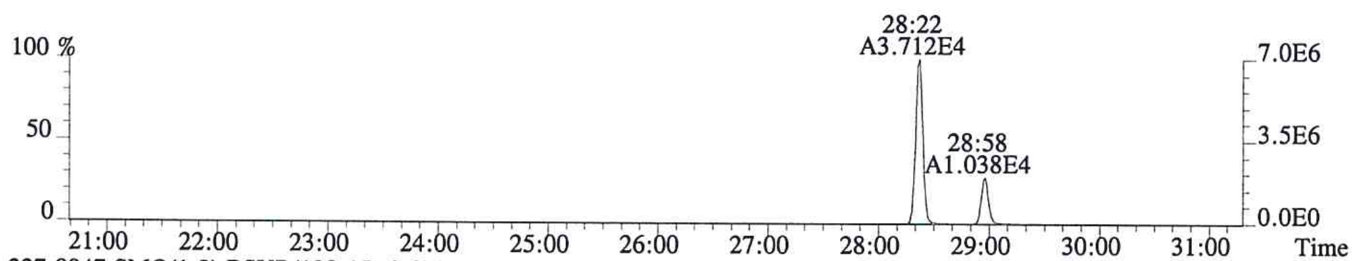
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



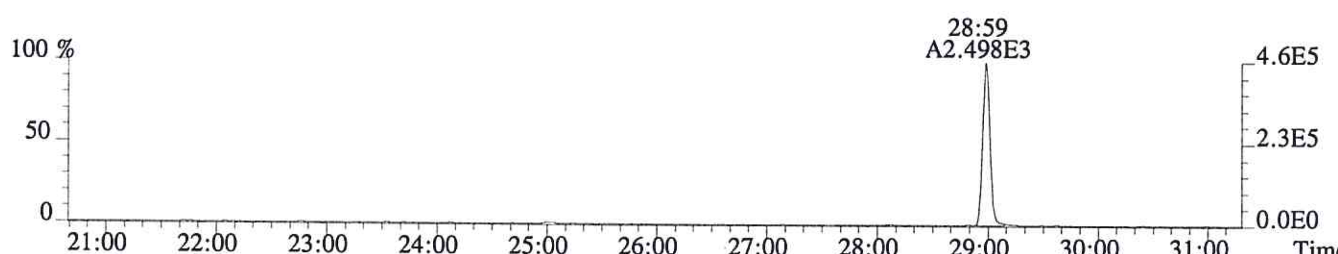
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7412.0,1.00%,F,T)



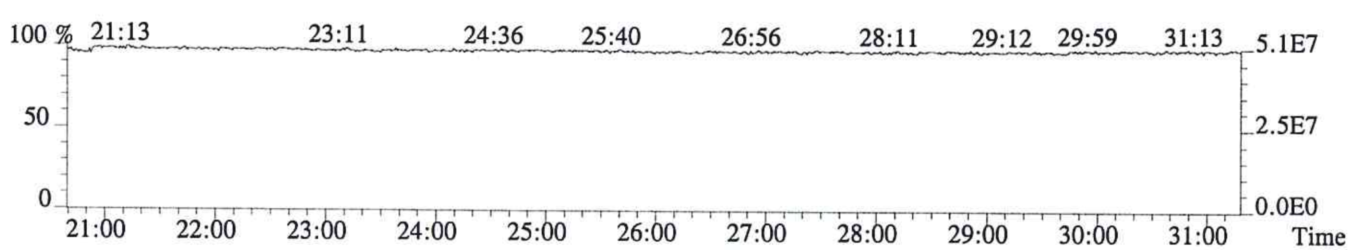
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3816.0,1.00%,F,T)



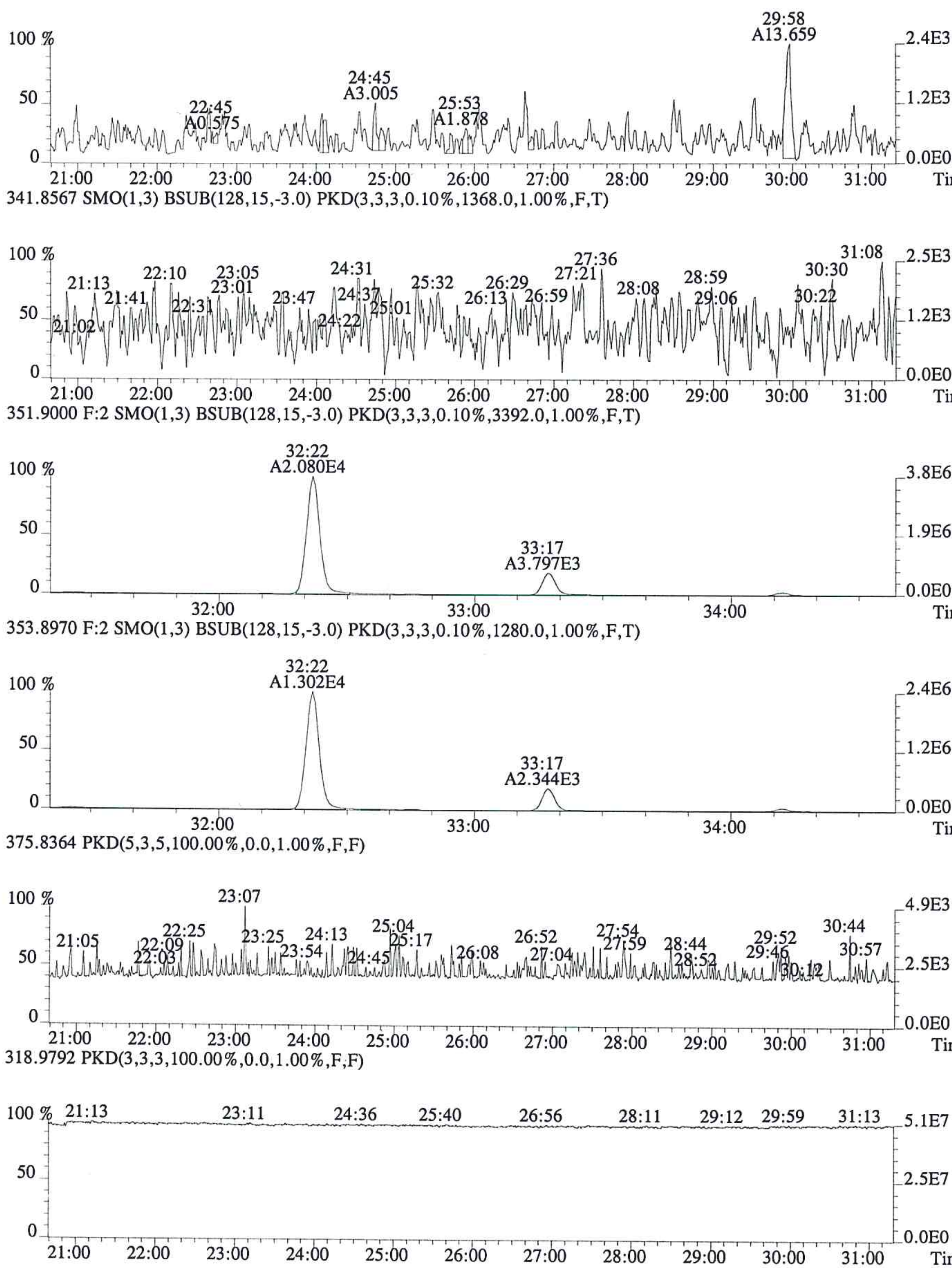
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



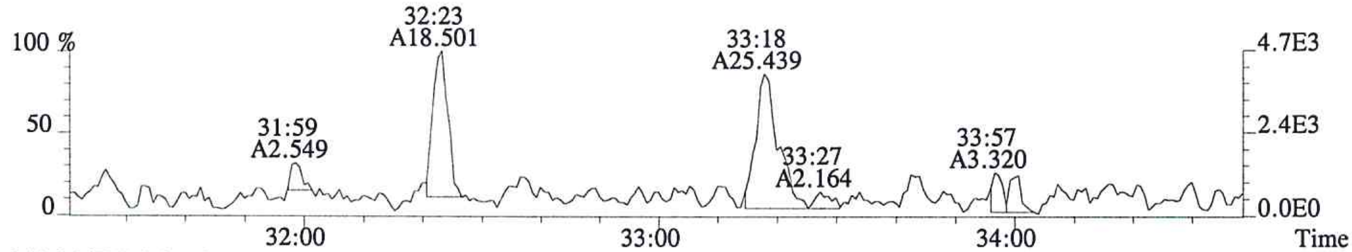
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



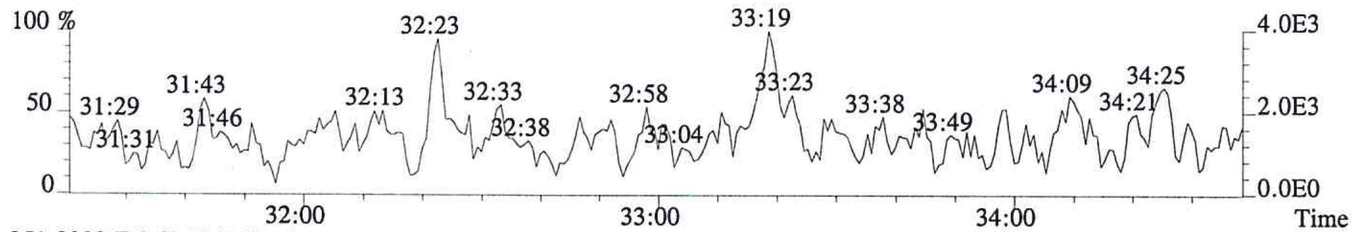
File:P603999 #1-756 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005



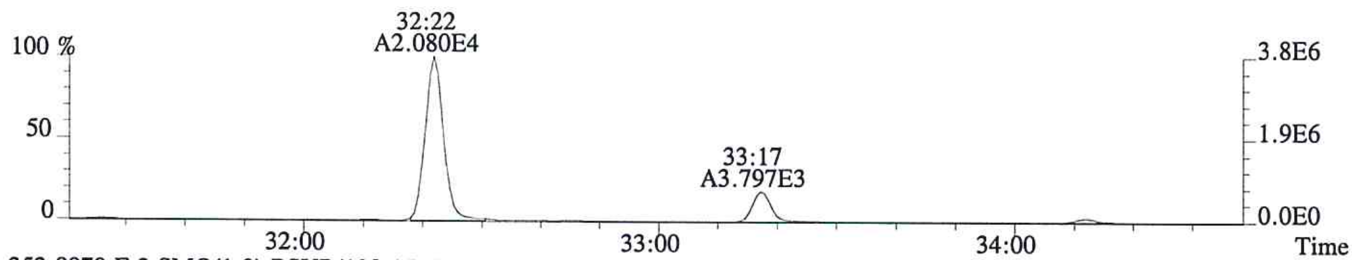
File:P603999 #1-298 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



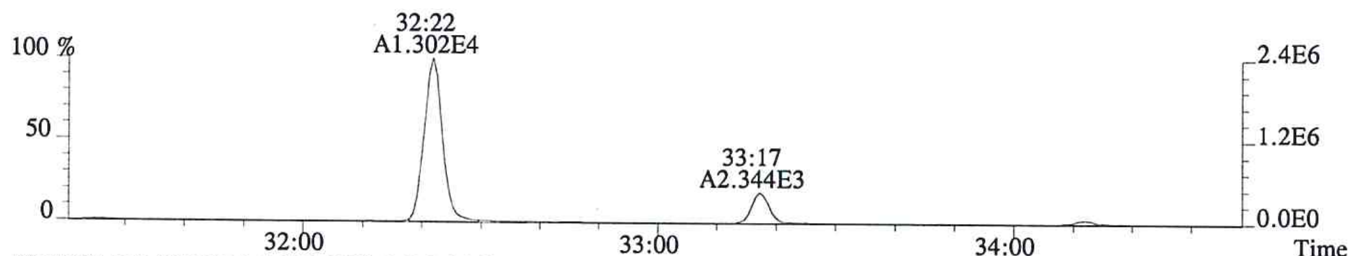
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



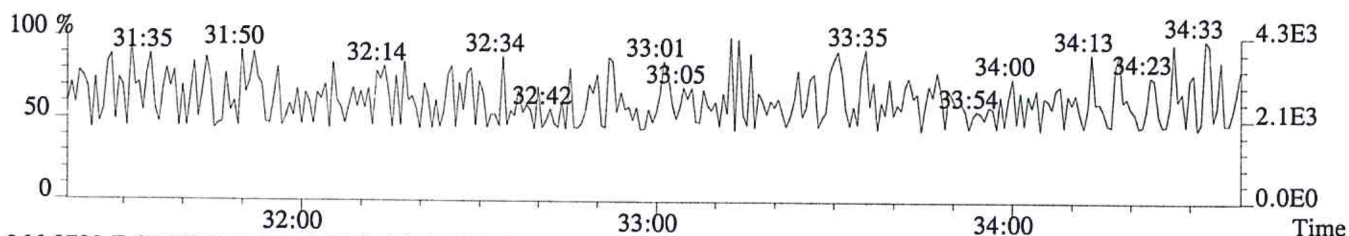
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)



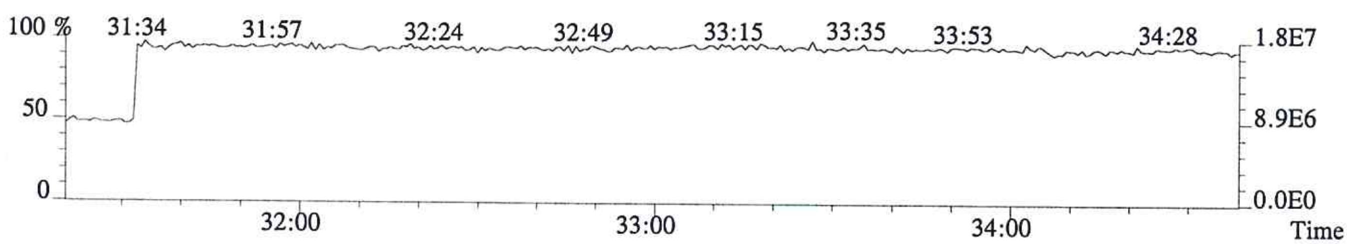
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



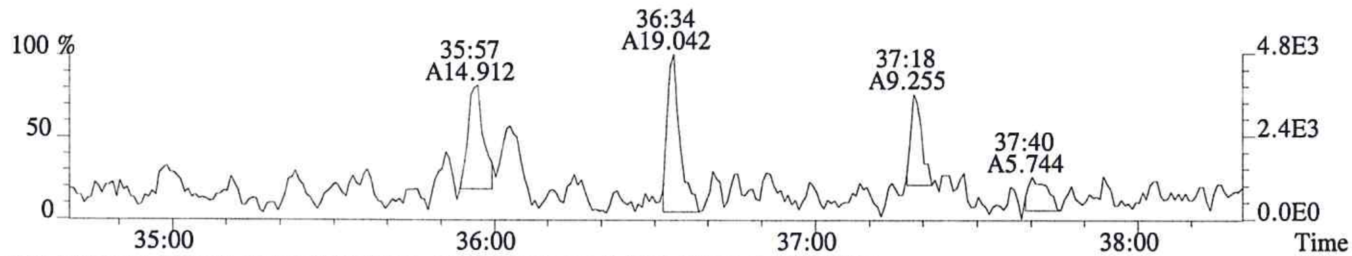
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



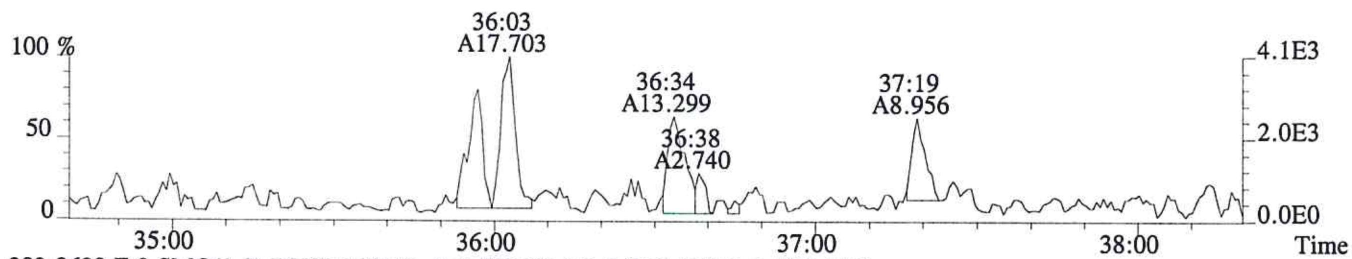
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



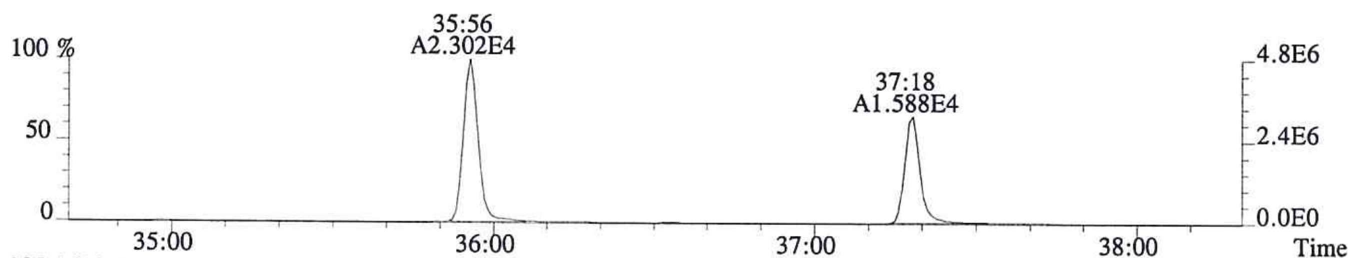
File:P603999 #1-329 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



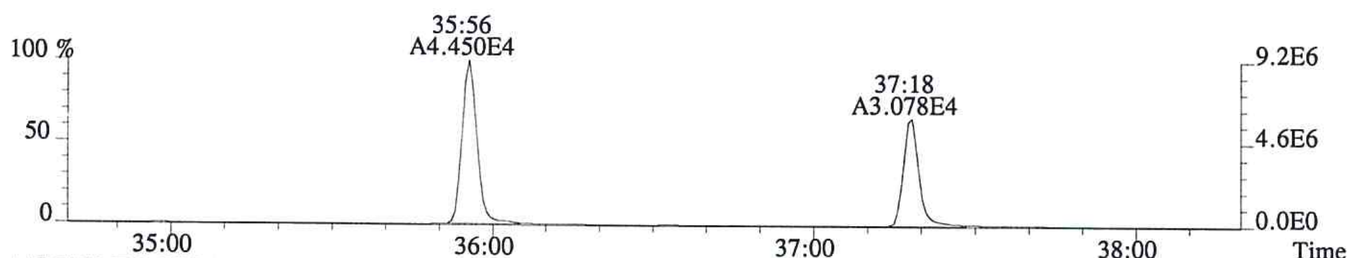
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



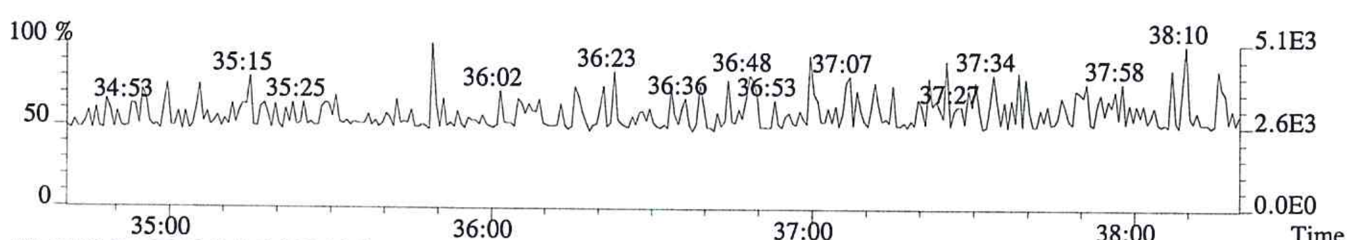
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



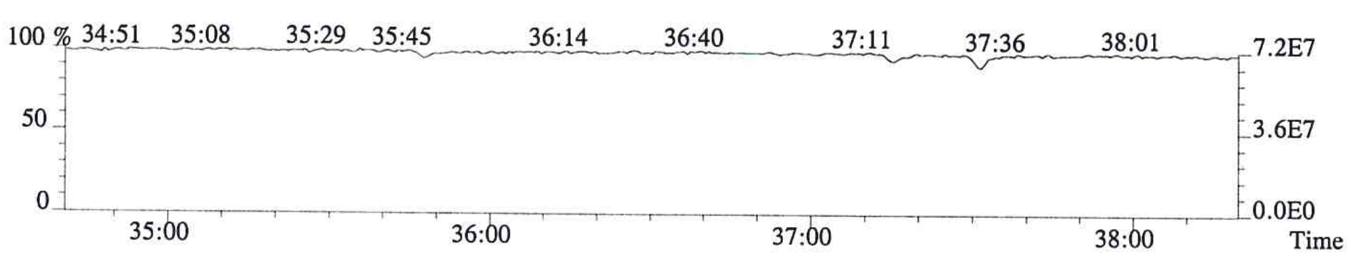
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



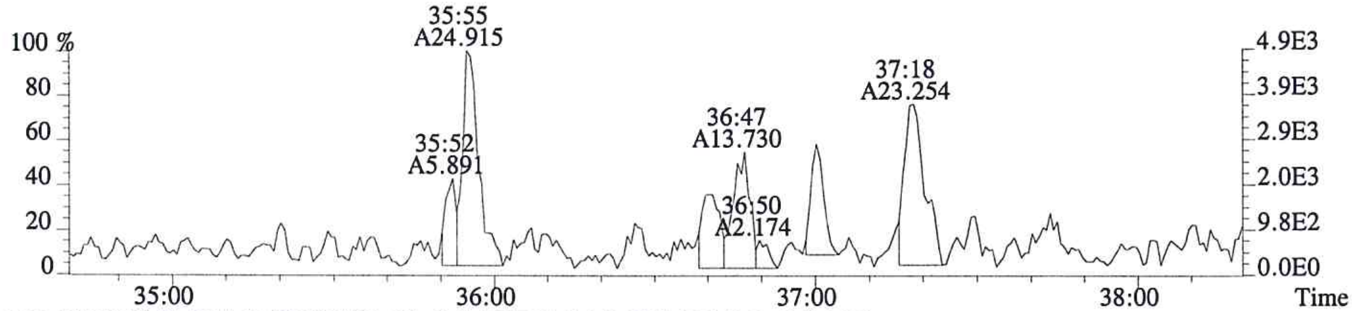
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



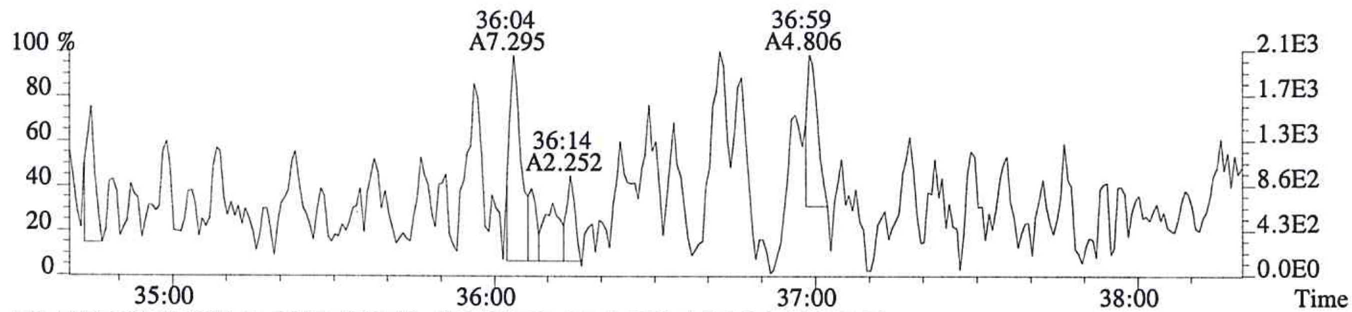
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



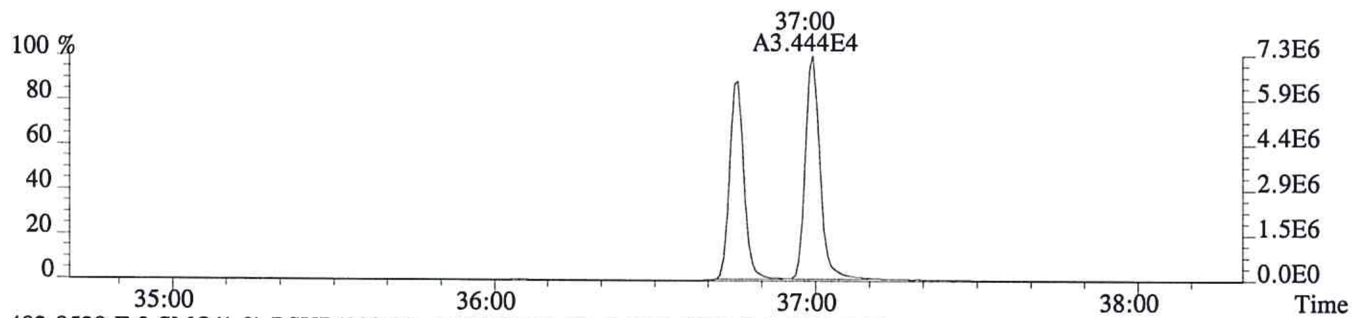
File:P603999 #1-329 Acq:26-JUN-2016 00:42:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



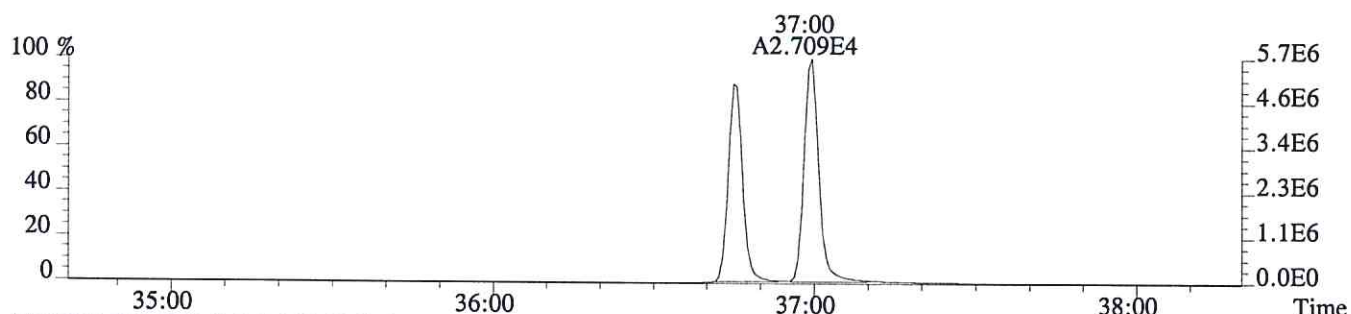
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



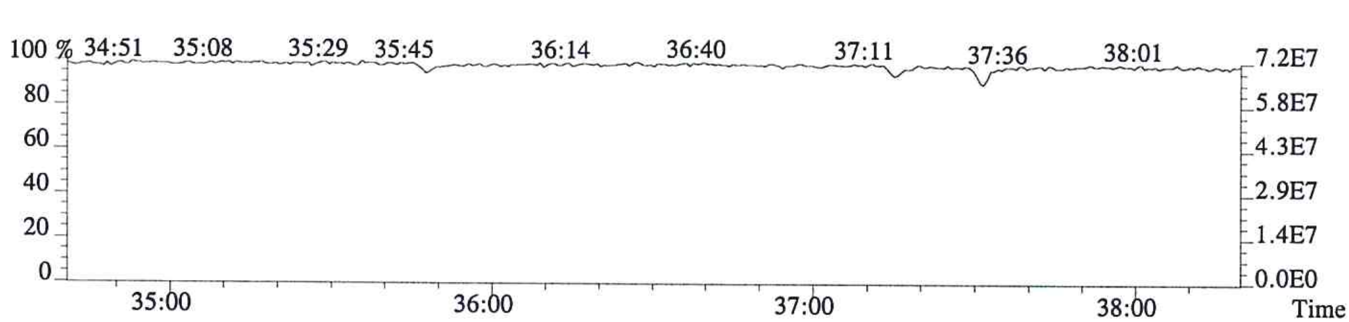
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



CLIENT ID.
04072016SJGW12

Run #15 Filename P604000 Samp: 1 Inj: 1 Acquired: 26-JUN-16 01:31:21
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	1.464e+04	1.850e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.381e+04	1.485e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.134e+03	2.647e+03	1.56	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.612e+04	3.101e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	4.304e+03	5.371e+03	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	9.914e+03	1.245e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.999e+04	3.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.547e+04	2.829e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	2.865e+03				no	0.945

EDL
(1.31e+03 + 9.02e+02) x 1000 pg 1 x 2.5
TCDD = -- = 1.27 ng/kg
(~~9.914e+03~~ + ~~1.245e+04~~) x 1.0 g x 100 / x 1.048
(1.85e+06 + 2.31e+06)
LKL 07/06/16

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW12

Run #15 Filename P604000 Samp: 1 Inj: 1 Acquired: 26-JUN-16 01:31:21
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.28e+02	*	*	2.97e+03	*
3	2,3,4,7,8-PeCDF	*	5.40e+02	*	*	1.65e+03	*
11	2,3,7,8-TCDD	*	1.31e+03	*	*	9.08e+02	*
18	13C-2,3,7,8-TCDF	2.61e+06	5.25e+03	5.0e+02	3.31e+06	2.36e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	4.44e+06	2.59e+03	1.7e+03	2.73e+06	2.64e+03	1.0e+03
20	13C-2,3,4,7,8-PeCDF	8.03e+05	2.59e+03	3.1e+02	5.10e+05	2.64e+03	1.9e+02
24	13C-1,2,3,7,8,9-HxCDF	3.16e+06	5.28e+02	6.0e+03	6.11e+06	1.19e+03	5.1e+03
26	13C-1,2,3,4-TCDF	7.10e+05	5.25e+03	1.4e+02	8.94e+05	2.36e+03	3.8e+02
27	13C-2,3,7,8-TCDD	1.85e+06	5.22e+03	3.5e+02	2.31e+06	3.69e+03	6.3e+02
33	13C-1,2,3,4-TCDD	5.69e+06	5.22e+03	1.1e+03	7.14e+06	3.69e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.13e+06	2.98e+03	2.4e+03	5.68e+06	1.38e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	5.47e+05	1.45e+03	3.8e+02			

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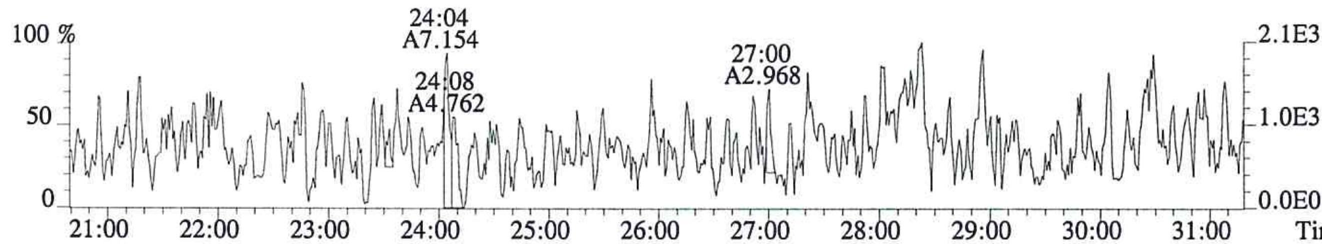
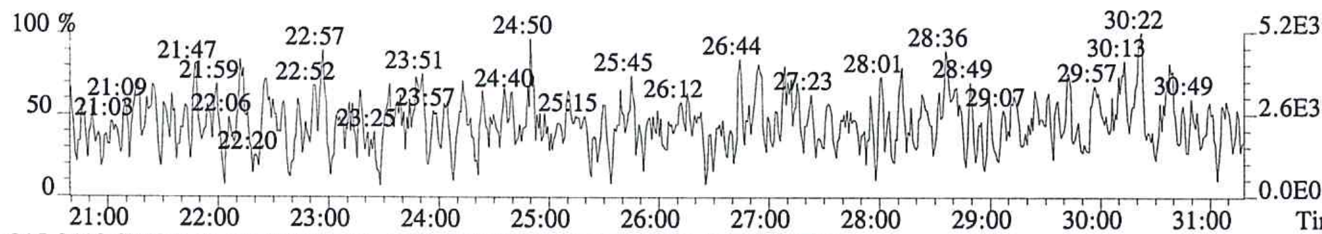
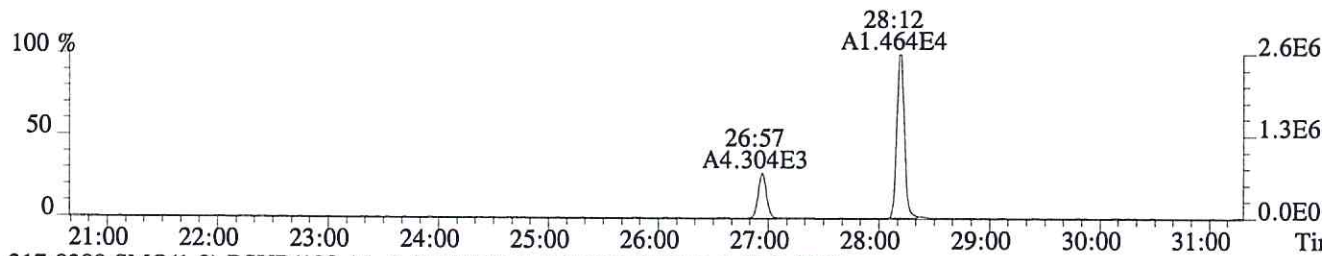
File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



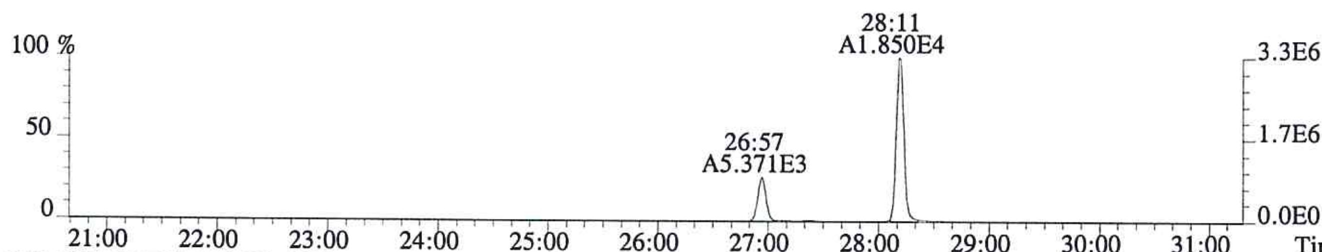
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



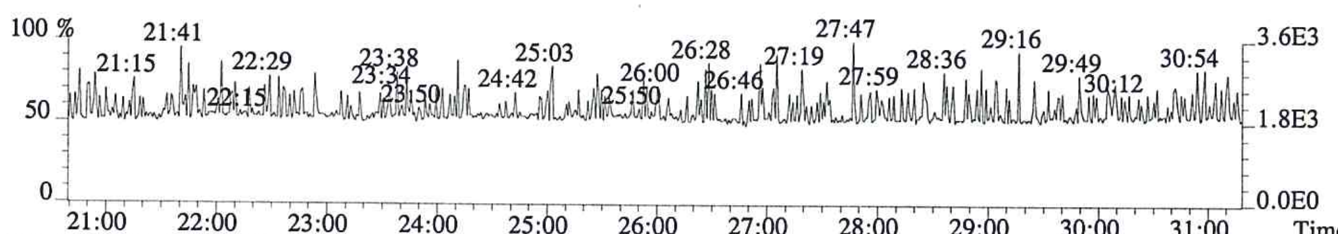
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5252.0,1.00%,F,T)



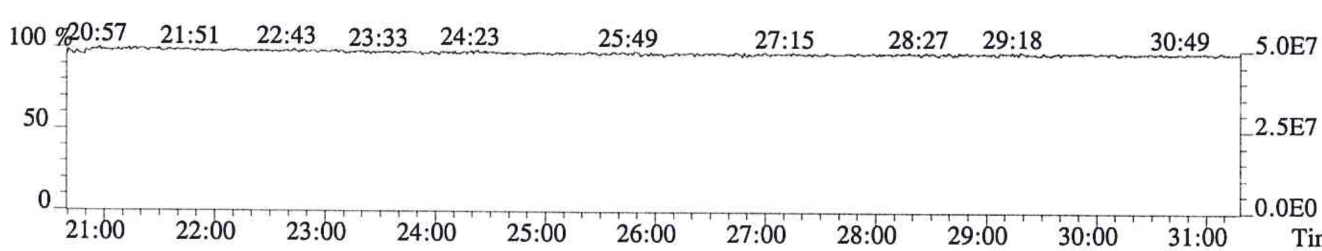
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



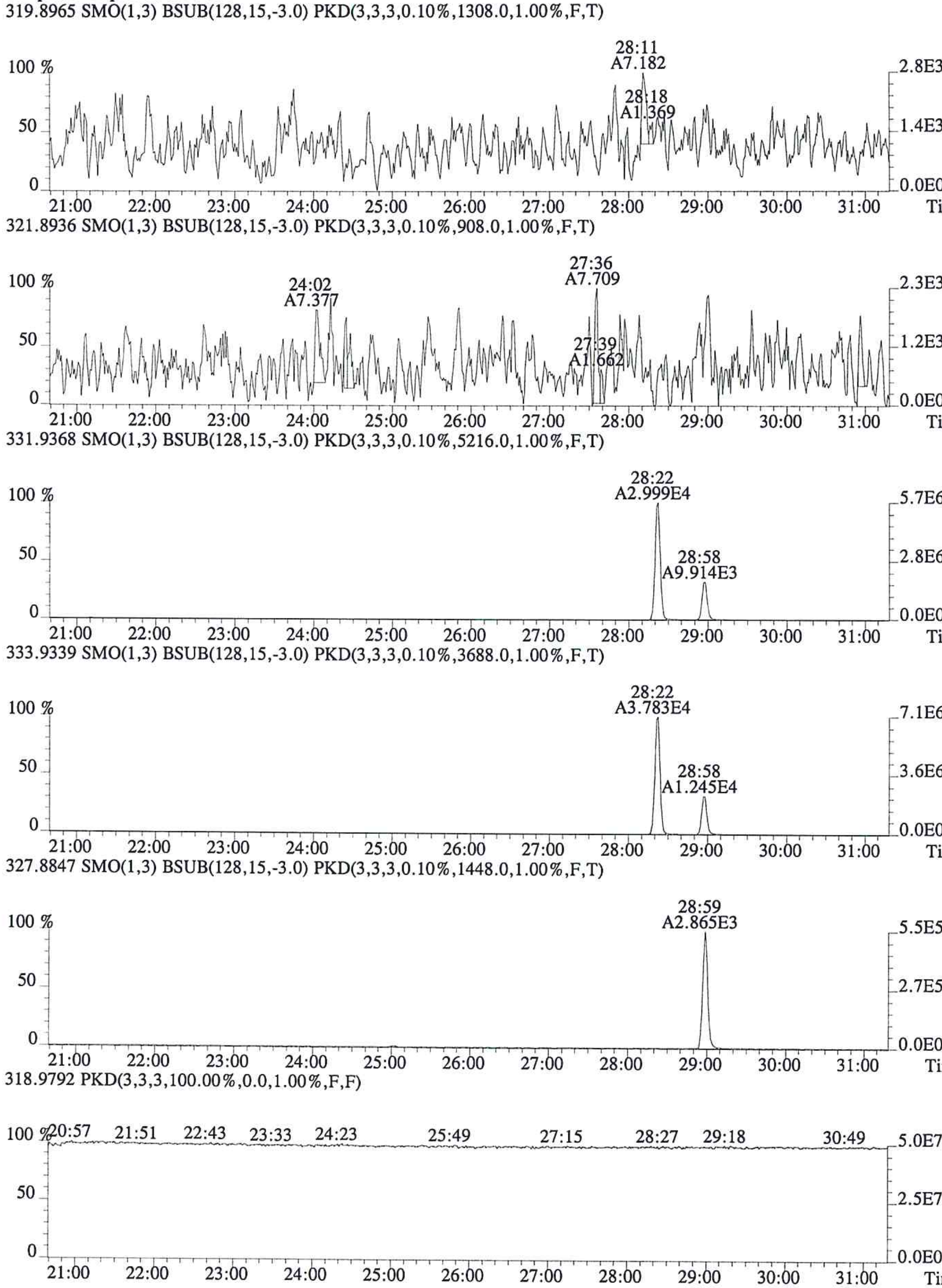
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



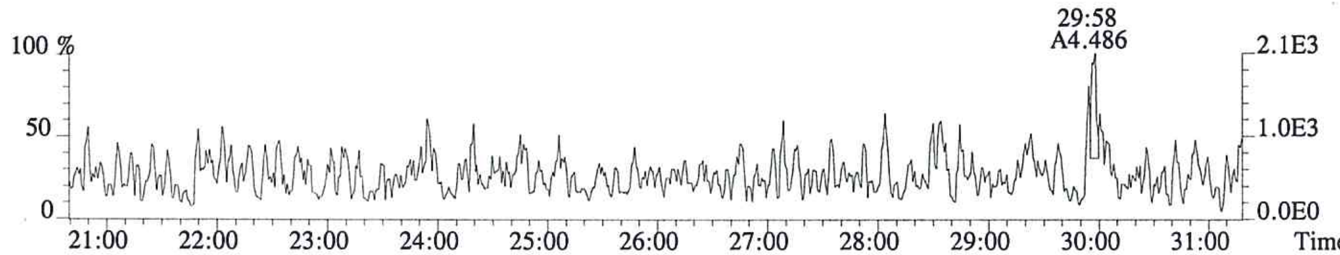
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



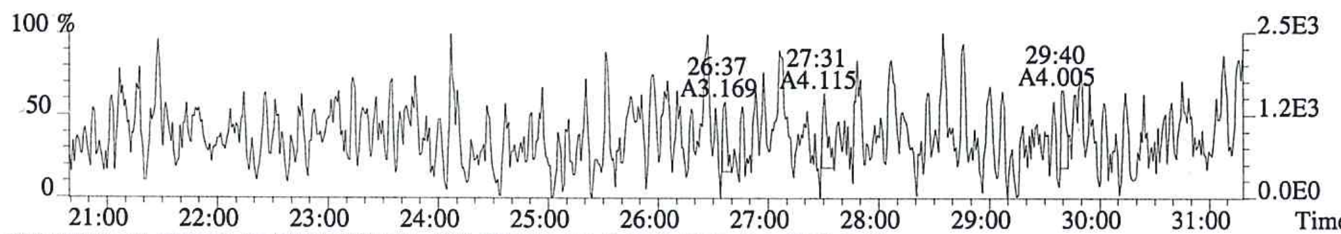
File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006



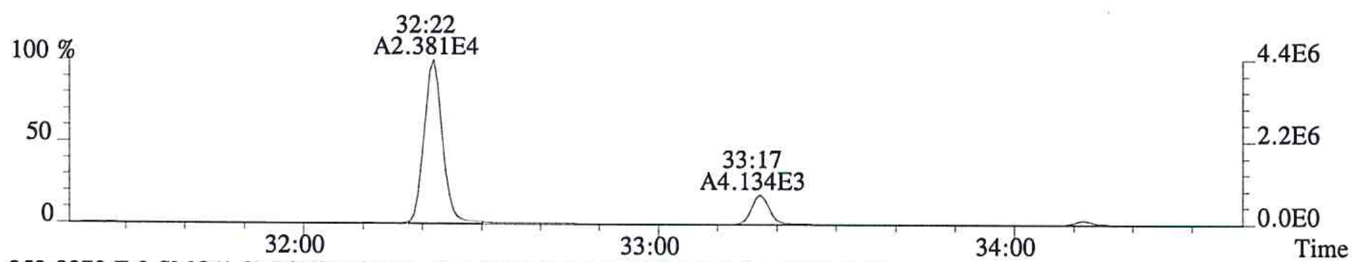
File:P604000 #1-756 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



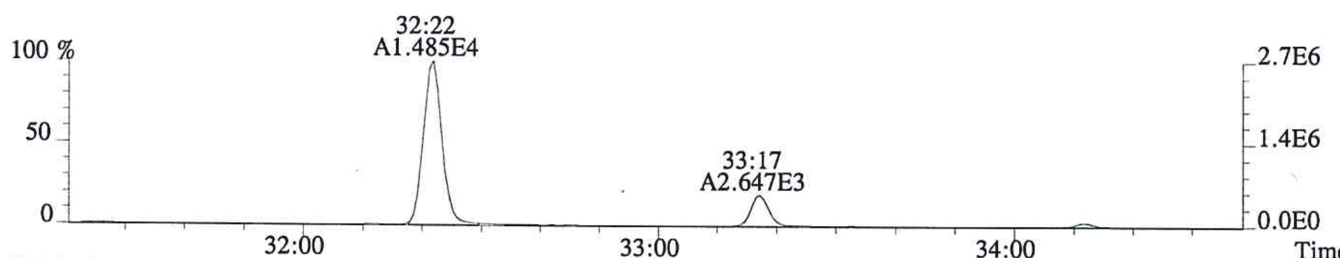
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



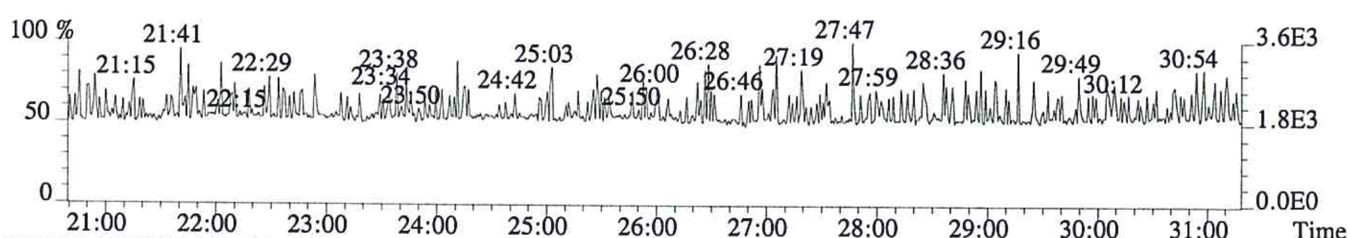
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



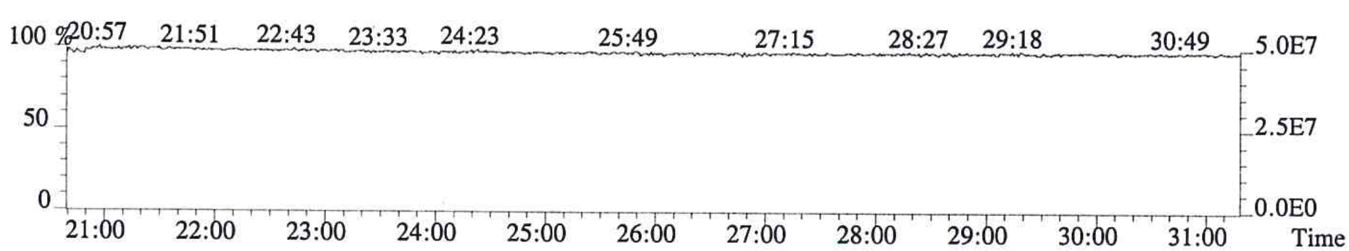
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



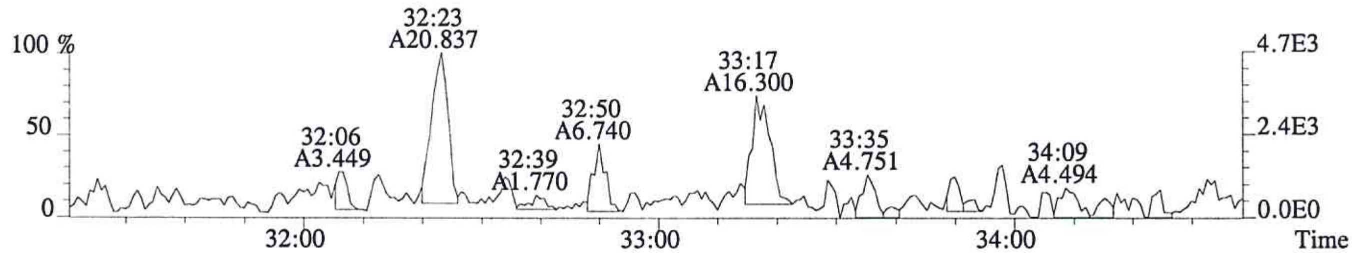
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



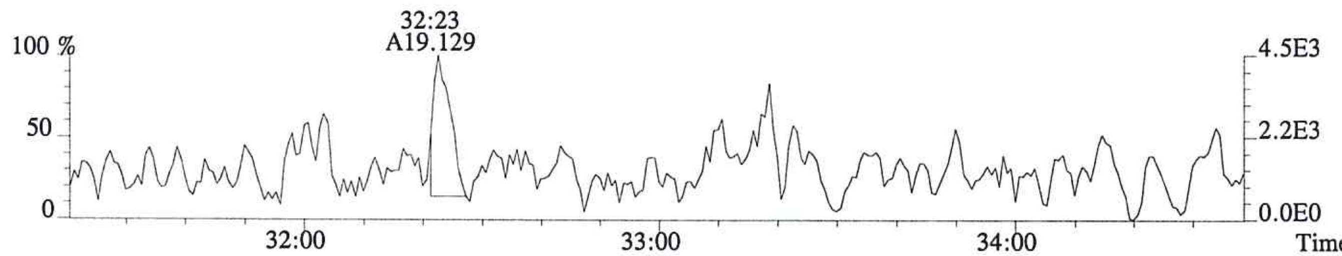
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



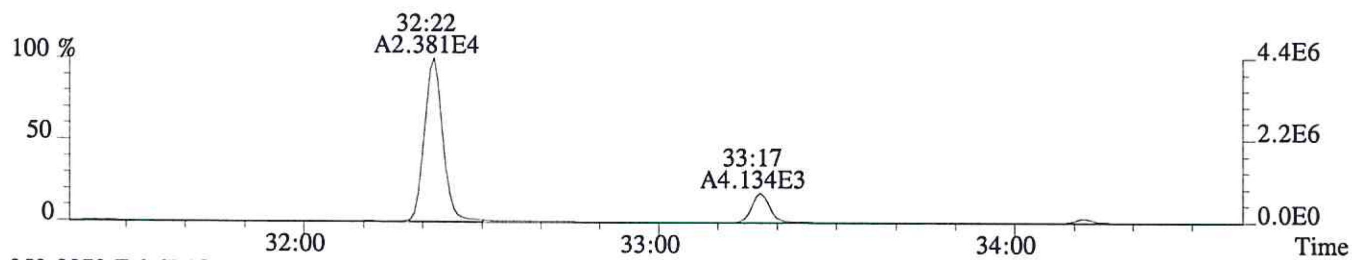
File:P604000 #1-298 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



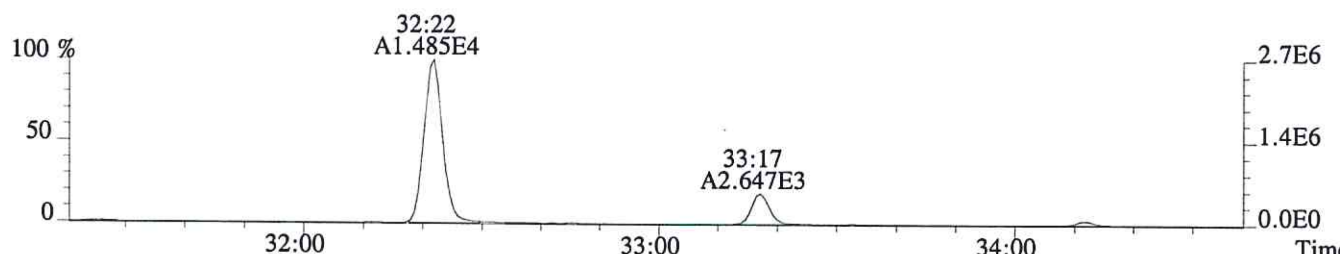
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



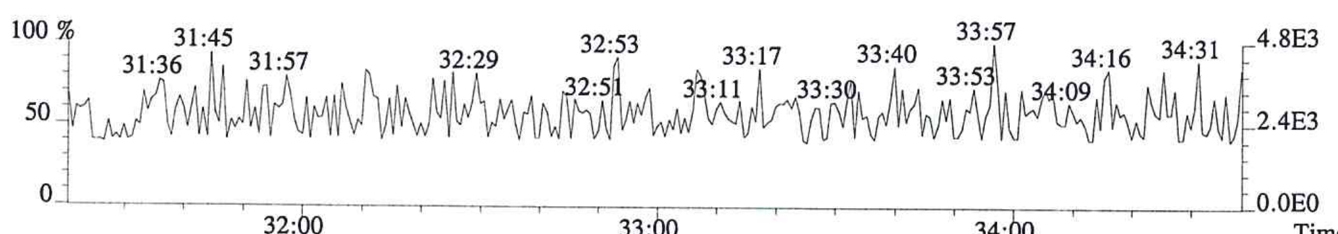
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



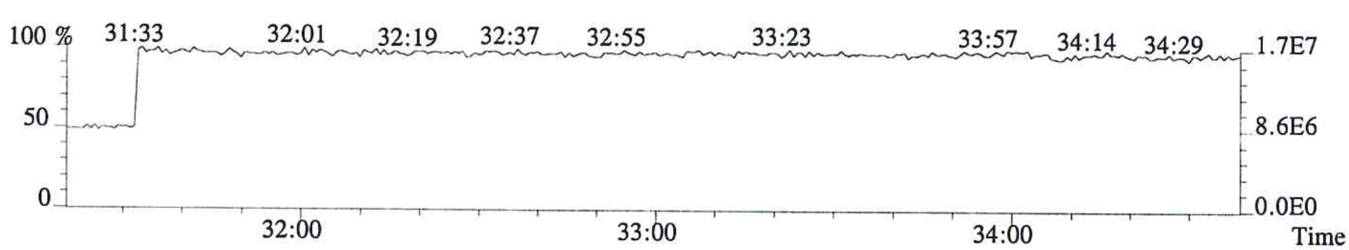
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



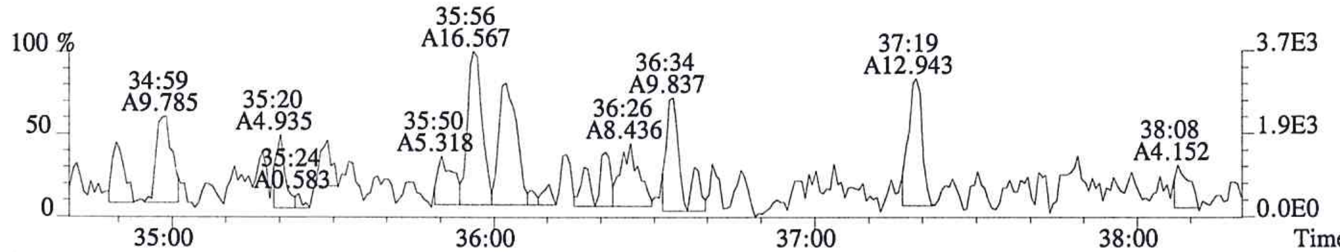
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



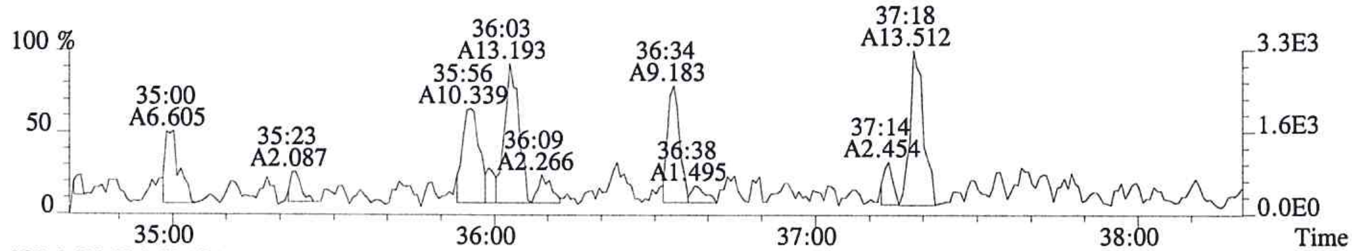
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



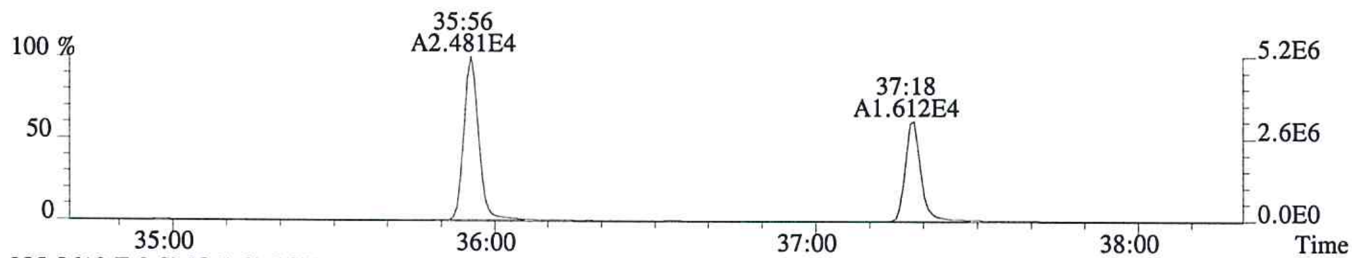
File:P604000 #1-329 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



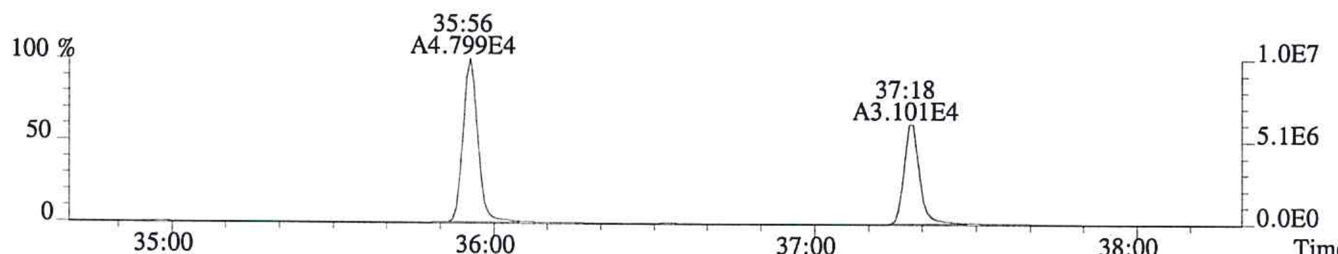
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



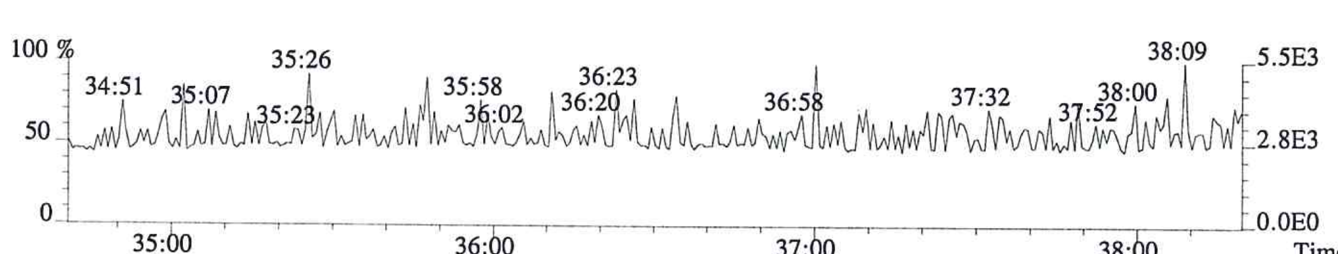
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



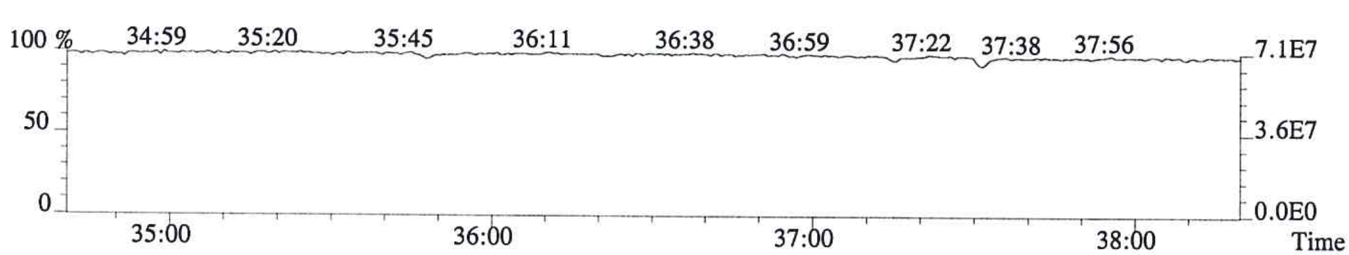
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



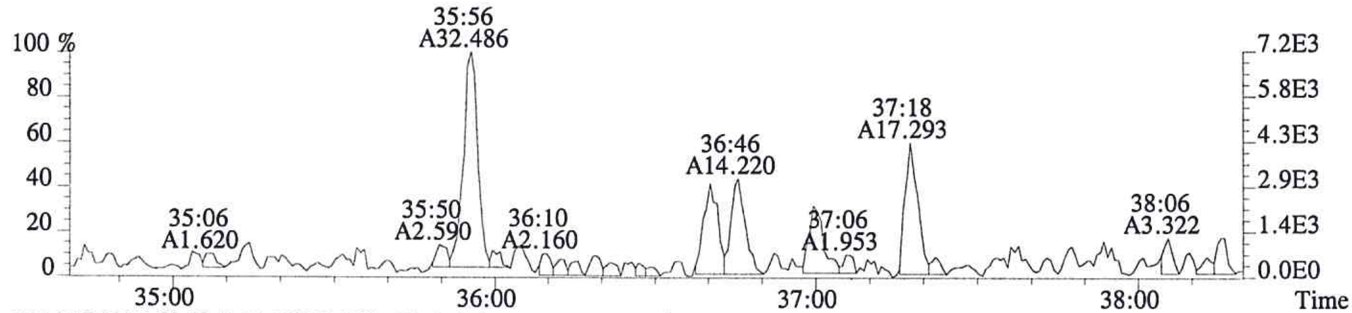
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



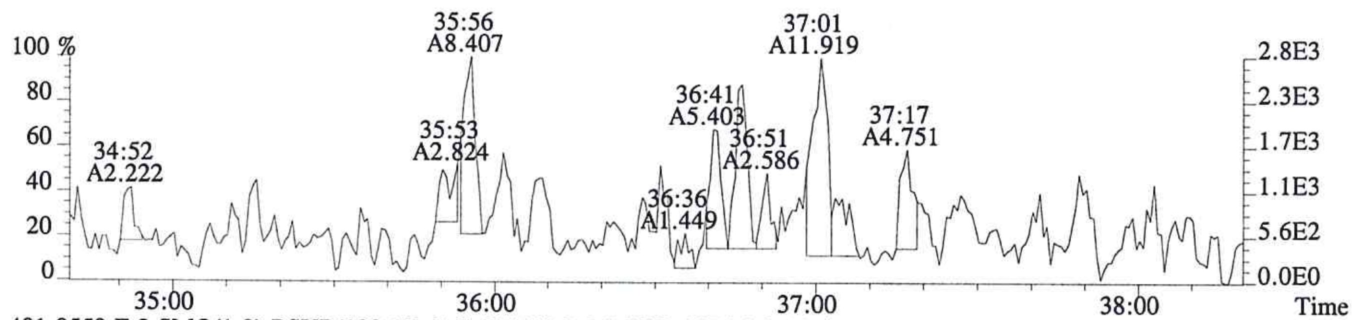
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



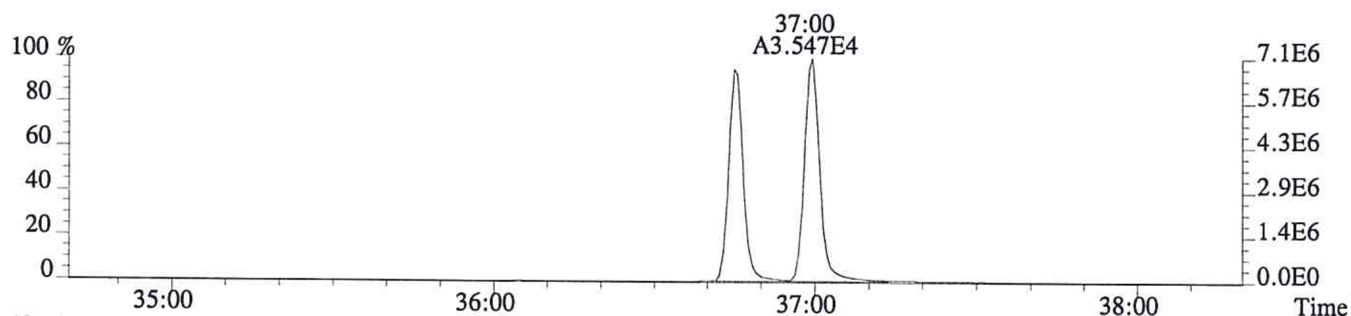
File:P604000 #1-329 Acq:26-JUN-2016 01:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



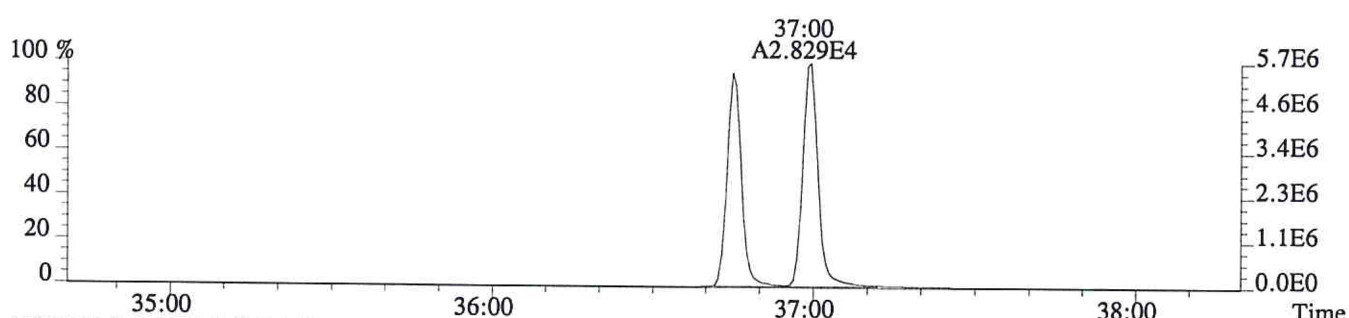
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



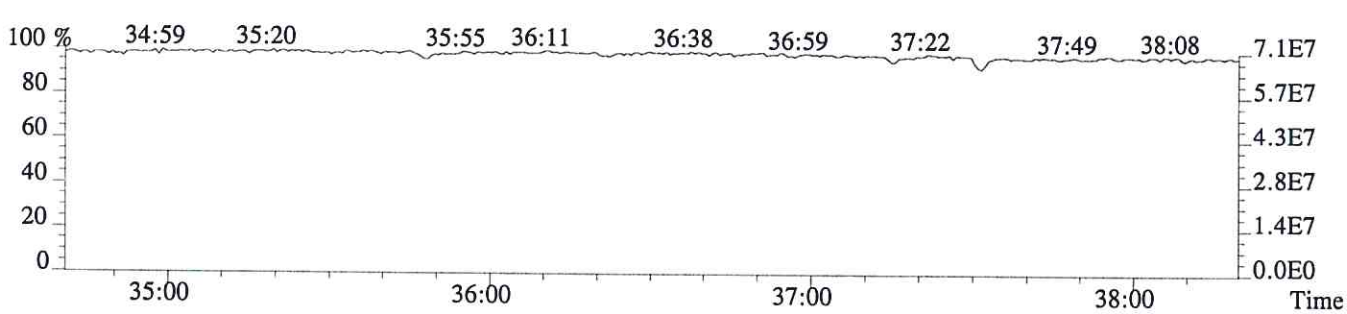
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW13

Run #16 Filename P604001 Samp: 1 Inj: 1 Acquired: 26-JUN-16 02:20:22
Processed: 1-JUL-16 13:08:59 Sample ID: E1600326-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	9.363e+02	1.148e+03	0.82	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.825e+03	1.174e+03	1.55	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	3.054e+02	2.112e+02	1.45	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.405e+03	2.709e+03	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	3.168e+02	4.360e+02	0.73	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	5.895e+02	7.688e+02	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	2.523e+03	3.192e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.660e+03	2.846e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.949e+02				no	0.945

EDL

$$TCDD = \frac{(4.12e{+}03 + 4.03e{+}03) \times 1000 \text{ pg } 1 \times 2.5}{(\cancel{5.895e{+}02} + \cancel{7.688e{+}02}) \times 1.0 \text{ g } \times 100/ \times 1.048} = 21.4 \text{ ng/kg}$$

(1.04e+05 + 1.35e+05)

UM 07/06/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW13

Run #16 Filename P604001 Samp: 1 Inj: 1 Acquired: 26-JUN-16 02:20:22
Processed: 1-JUL-16 13:08:59 LAB. ID: E1600326-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.08e+02	*	*	2.17e+03	*
3	2,3,4,7,8-PeCDF	*	6.20e+02	*	*	1.73e+03	*
11	2,3,7,8-TCDD	*	1.12e+03	*	*	1.03e+03	*
18	13C-2,3,7,8-TCDF	1.44e+05	3.37e+03	4.3e+01	1.83e+05	2.86e+03	6.4e+01
19	13C-1,2,3,7,8-PeCDF	2.98e+05	7.32e+02	4.1e+02	1.92e+05	1.19e+03	1.6e+02
20	13C-2,3,4,7,8-PeCDF	5.63e+04	7.32e+02	7.7e+01	3.56e+04	1.19e+03	3.0e+01
24	13C-1,2,3,7,8,9-HxCDF	2.61e+05	6.12e+02	4.3e+02	4.89e+05	1.65e+03	3.0e+02
26	13C-1,2,3,4-TCDF	4.89e+04	3.37e+03	1.5e+01	6.38e+04	2.86e+03	2.2e+01
27	13C-2,3,7,8-TCDD	1.04e+05	6.63e+03	1.6e+01	1.35e+05	4.19e+03	3.2e+01
33	13C-1,2,3,4-TCDD	4.45e+05	6.63e+03	6.7e+01	5.77e+05	4.19e+03	1.4e+02
34	13C-1,2,3,7,8,9-HxCDD	7.04e+05	1.52e+03	4.6e+02	5.43e+05	1.11e+03	4.9e+02
35	37Cl-2,3,7,8-TCDD	3.27e+04	1.64e+03	2.0e+01			

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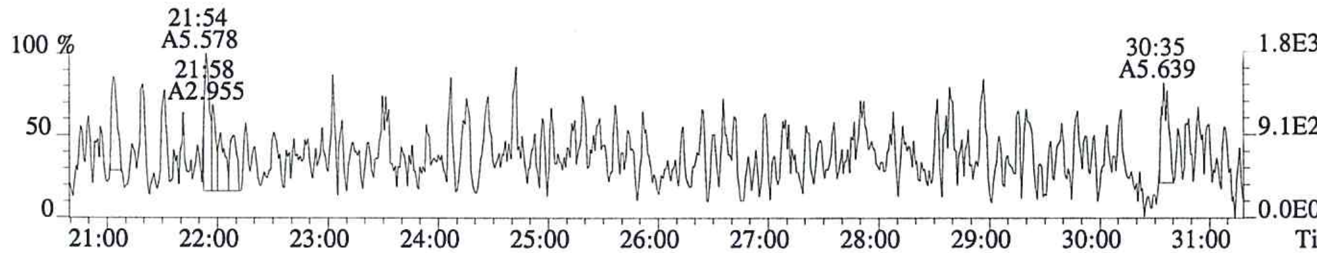
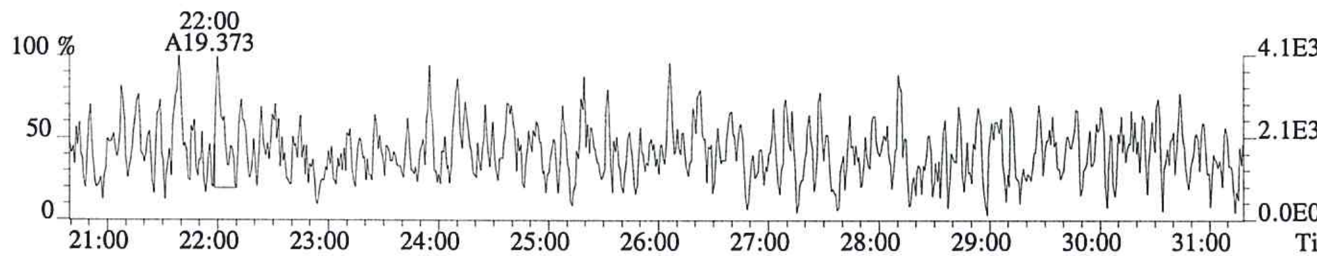
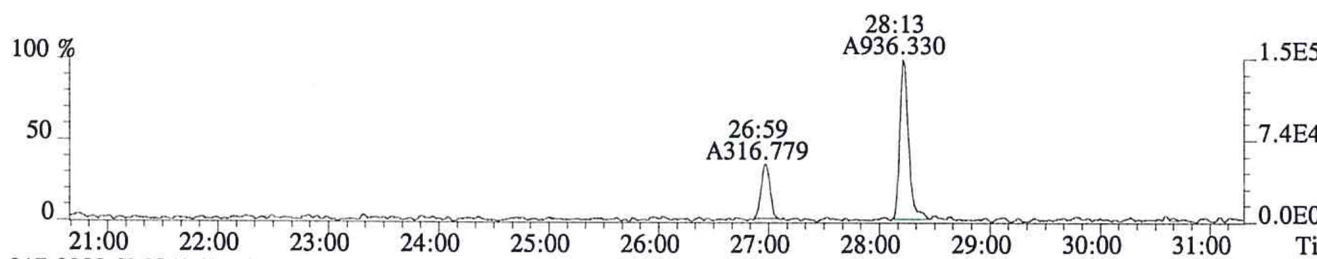
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



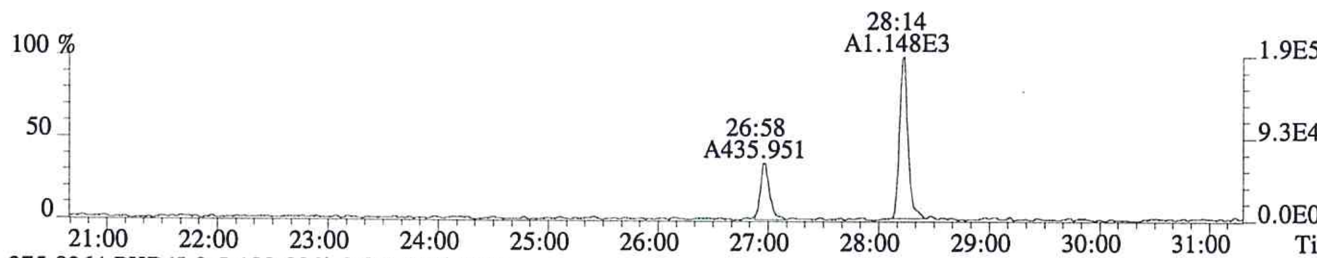
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



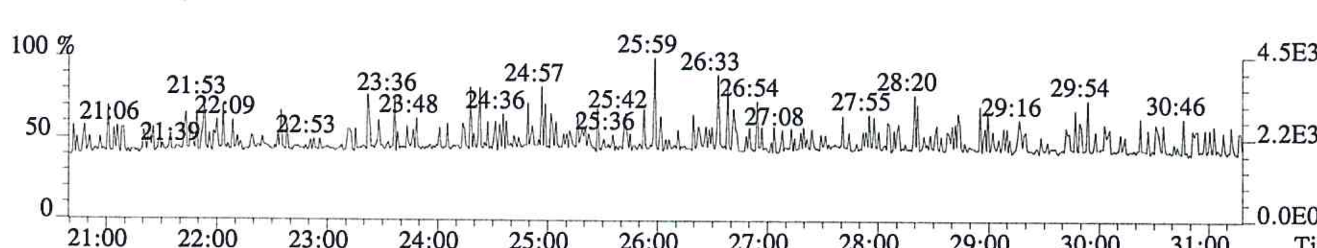
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



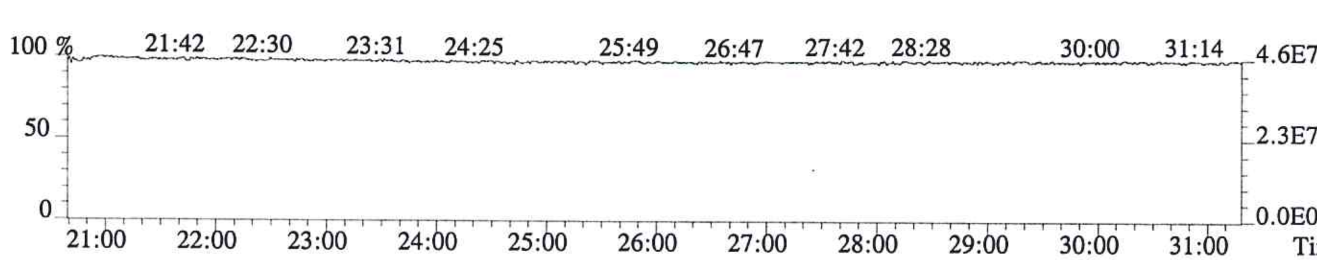
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



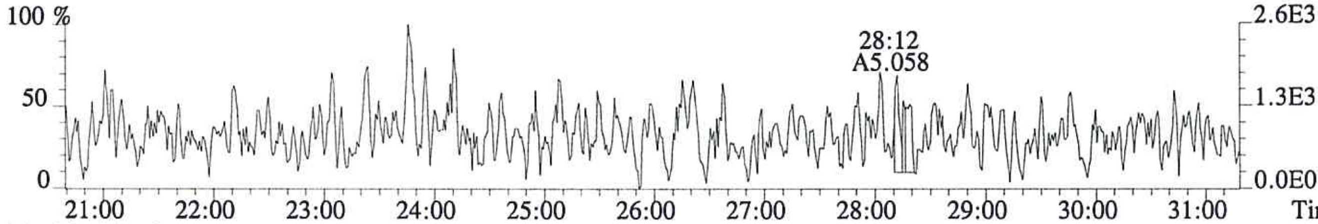
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



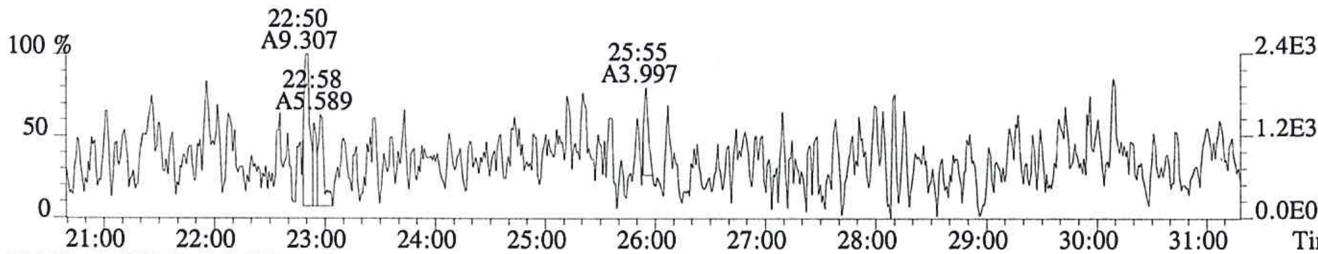
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



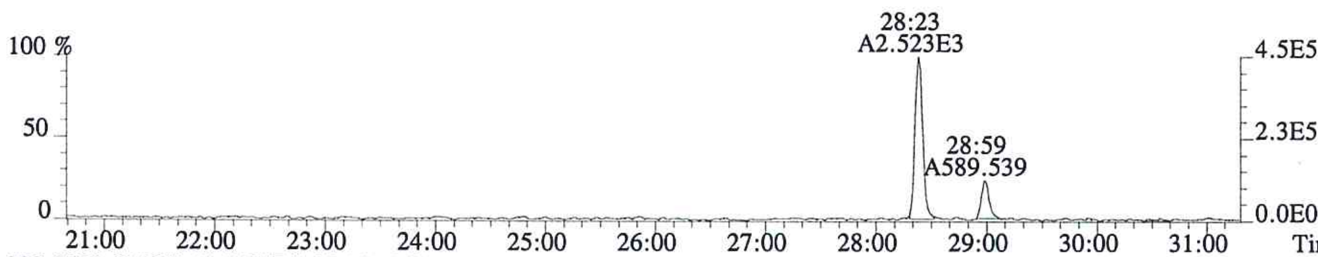
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



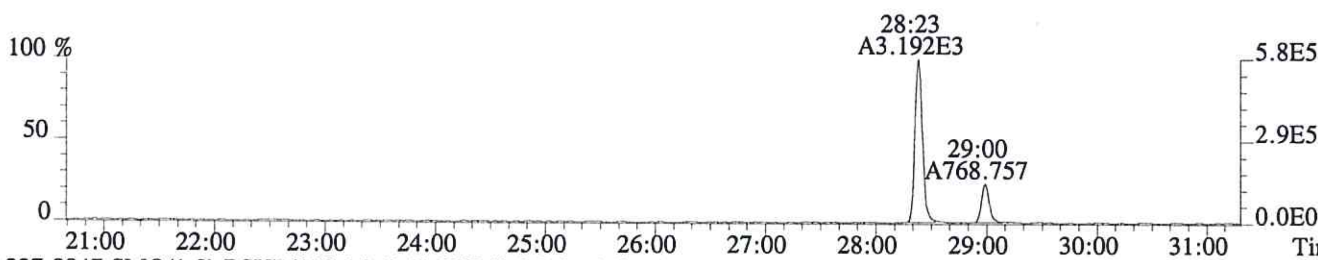
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



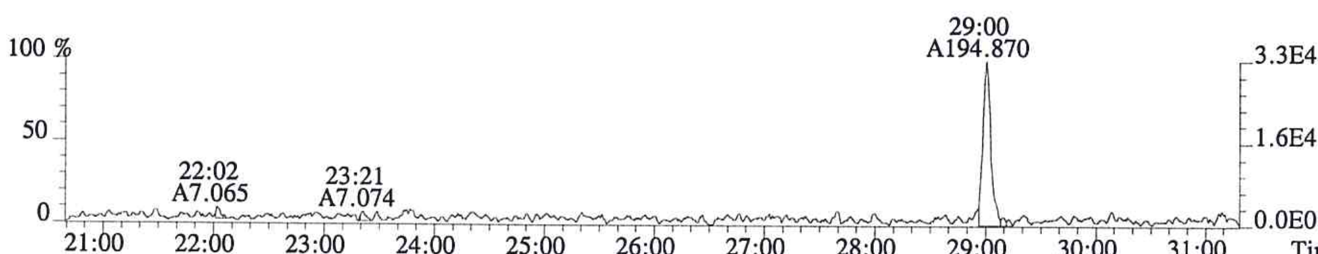
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6632.0,1.00%,F,T)



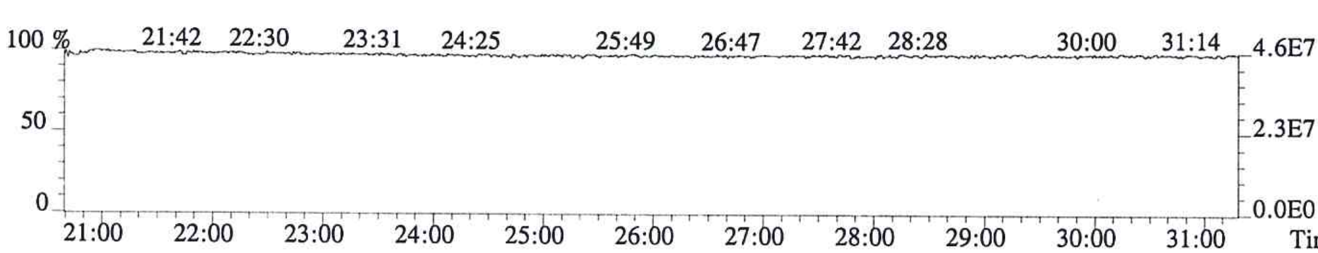
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4188.0,1.00%,F,T)



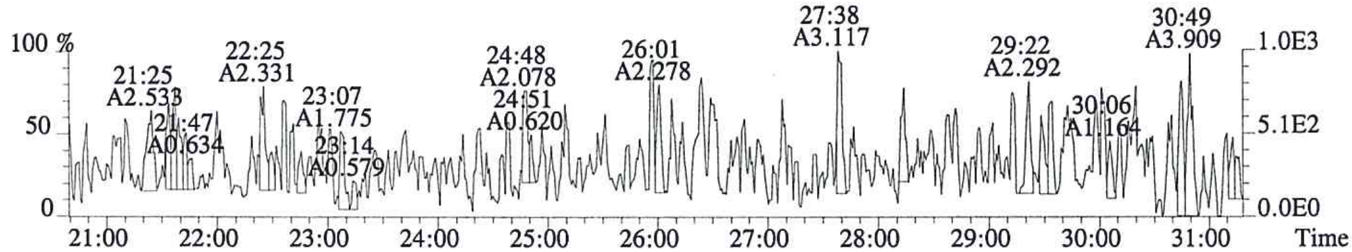
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



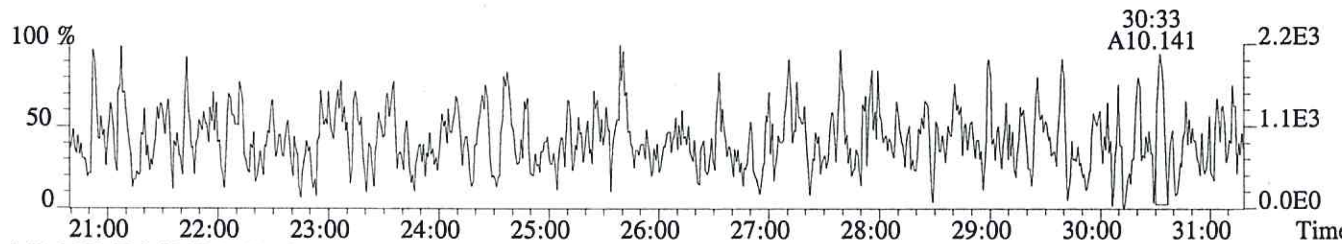
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



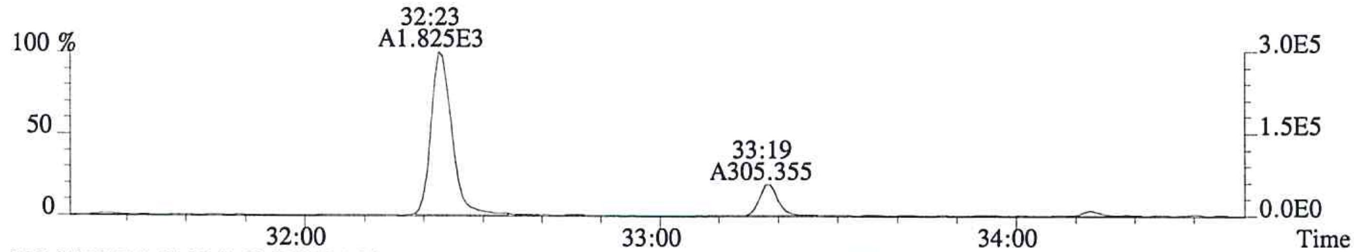
File:P604001 #1-756 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



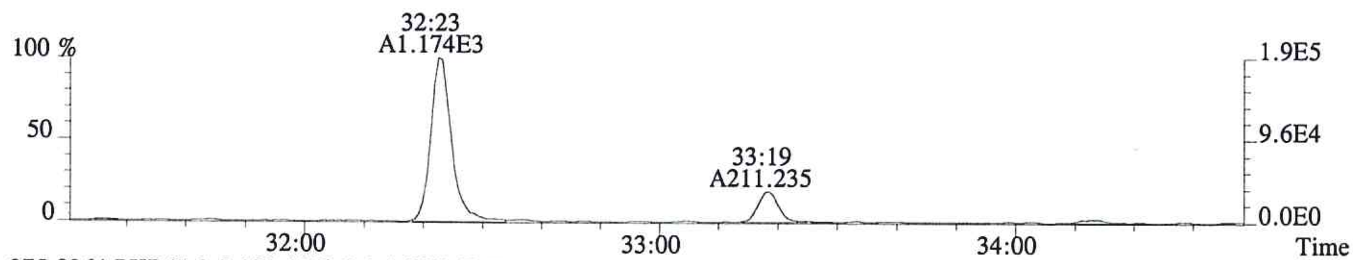
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



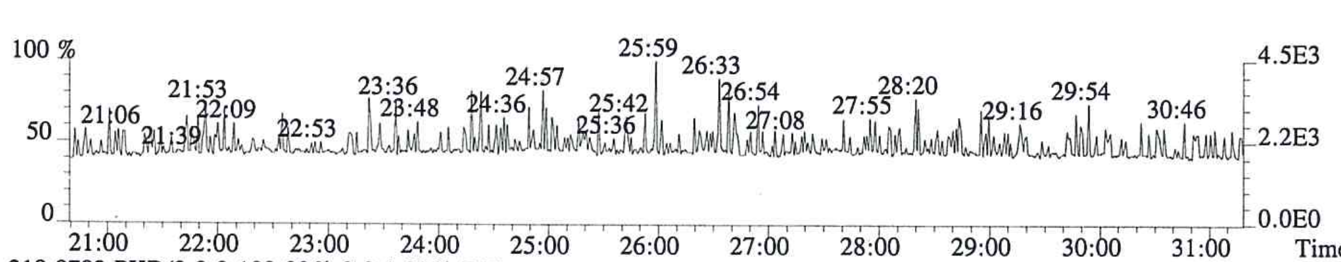
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



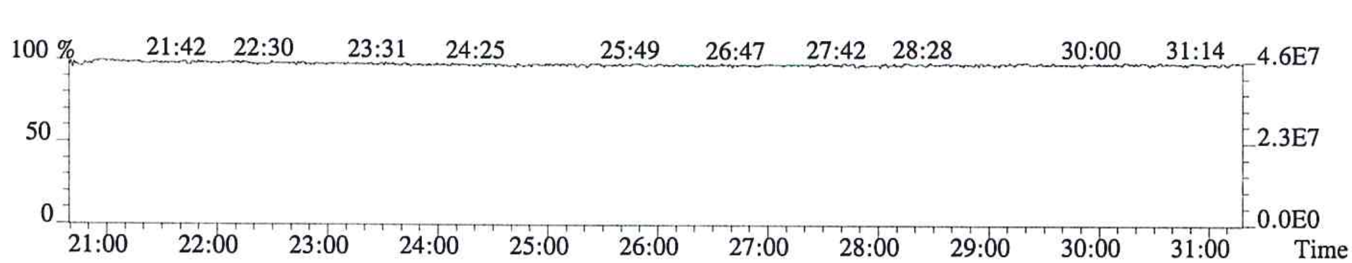
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



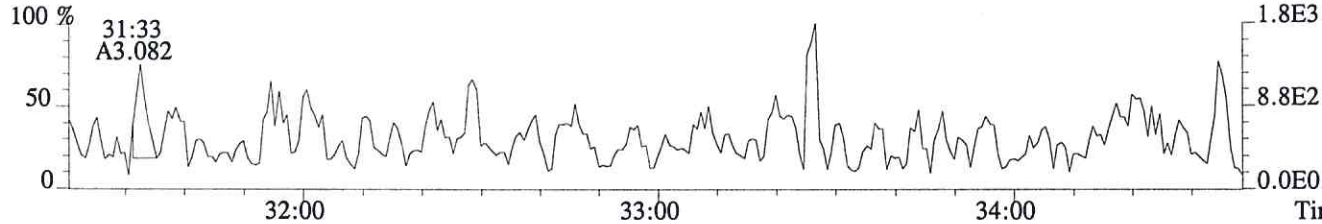
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



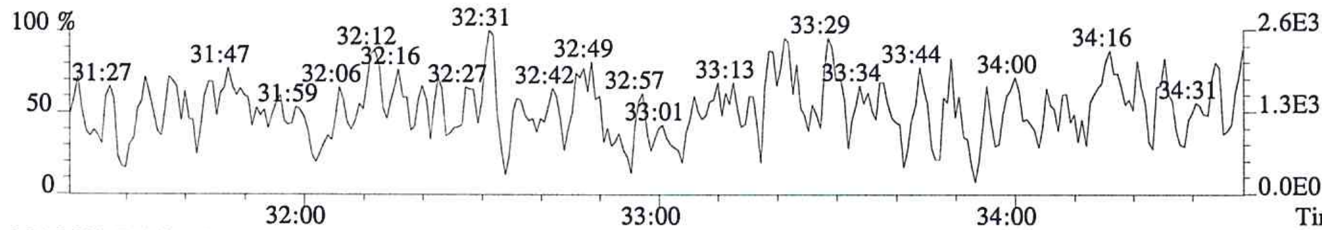
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



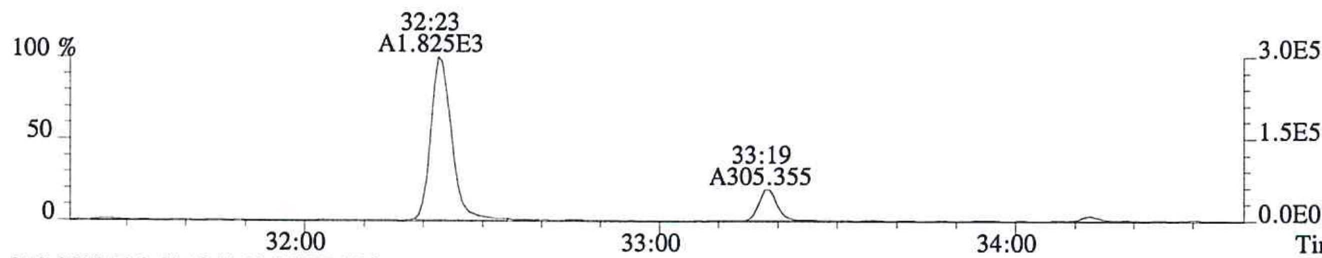
File:P604001 #1-298 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



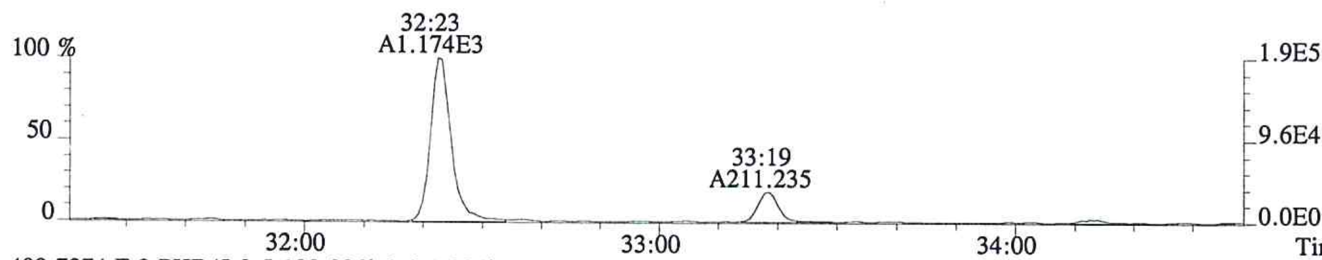
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1732.0,1.00%,F,T)



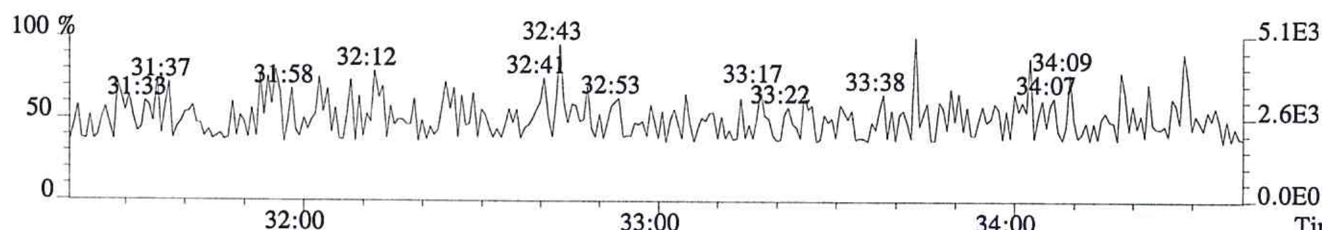
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



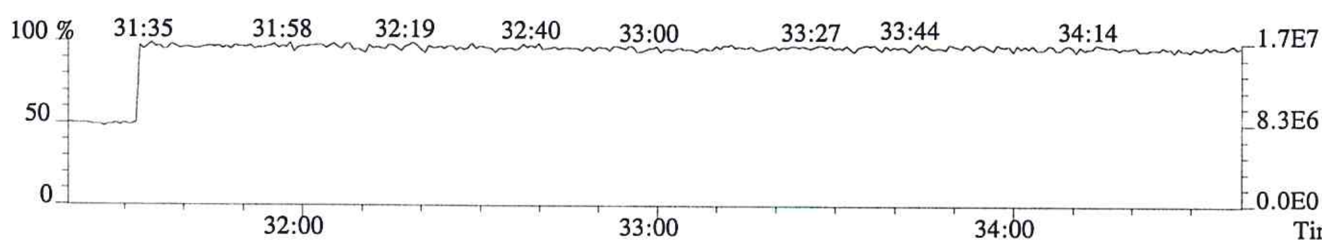
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



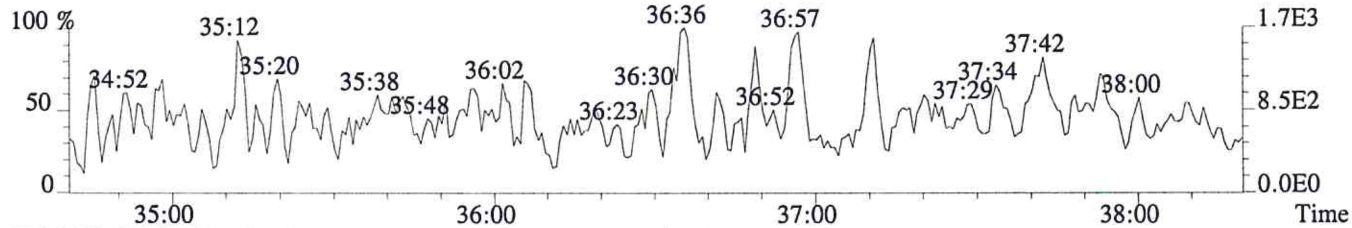
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



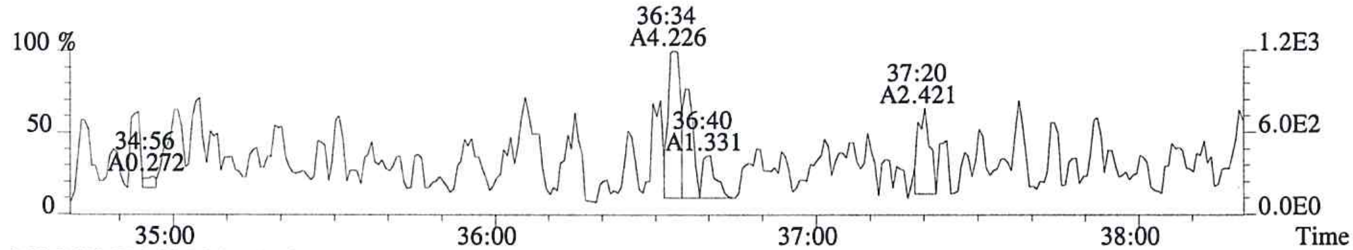
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



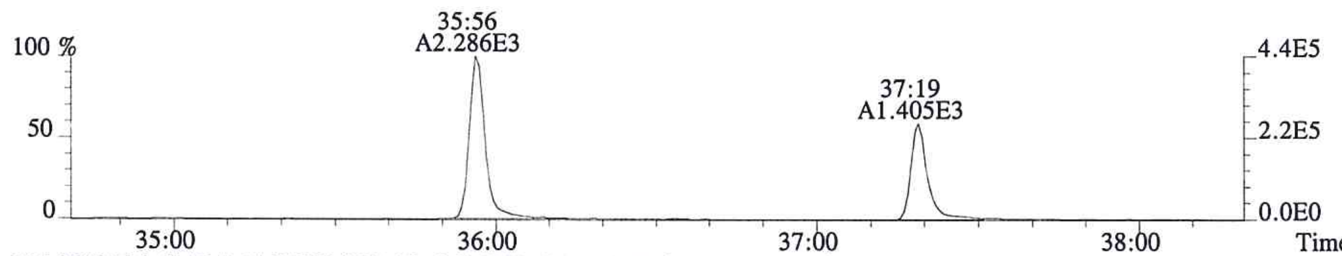
File:P604001 #1-329 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



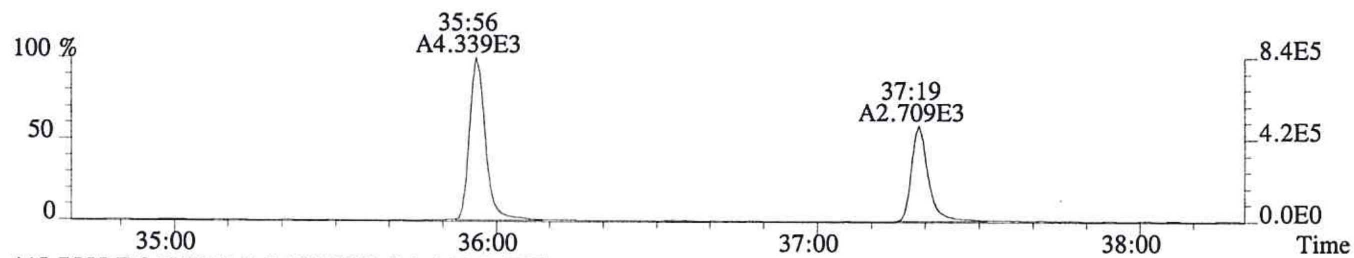
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



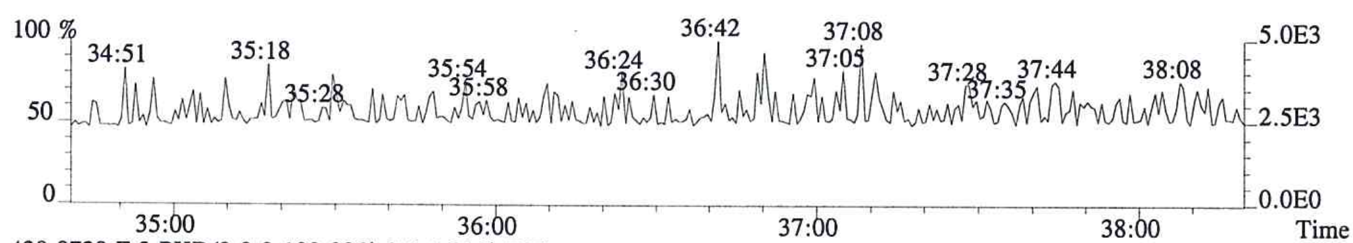
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



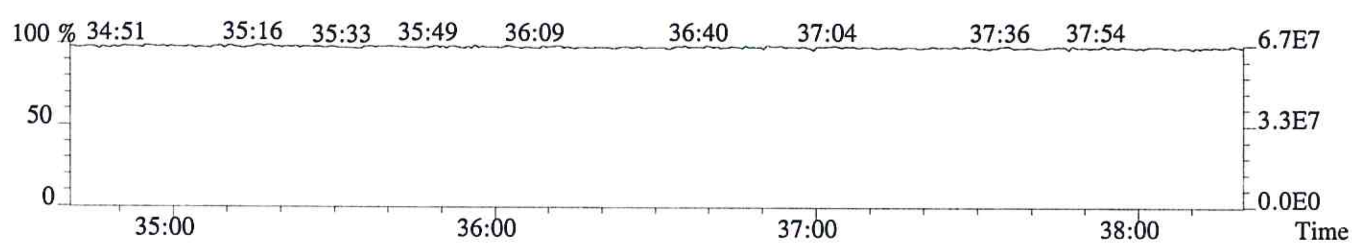
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.40%,F,T)



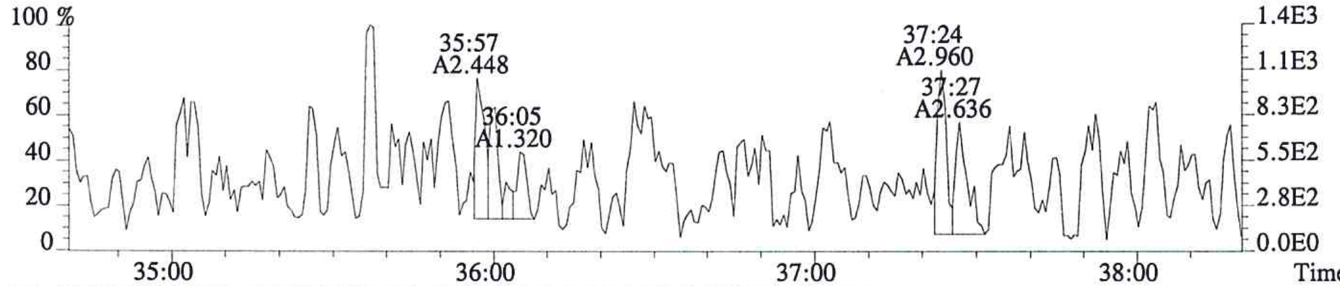
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



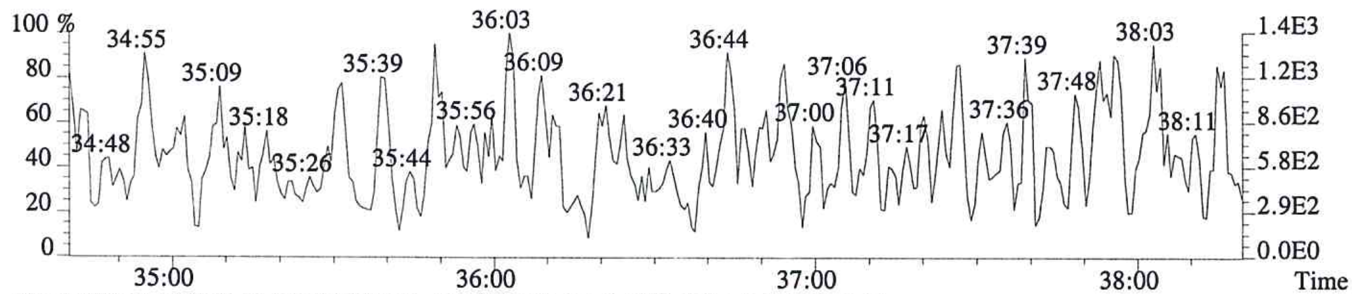
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



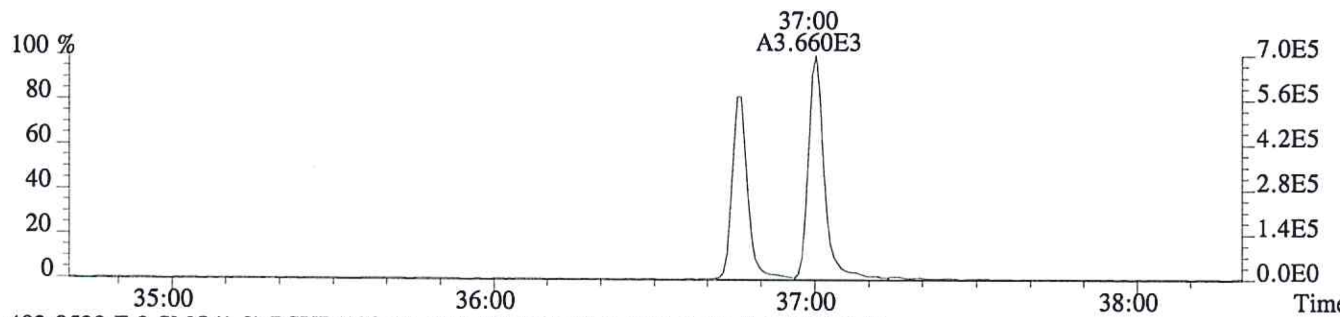
File:P604001 #1-329 Acq:26-JUN-2016 02:20:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



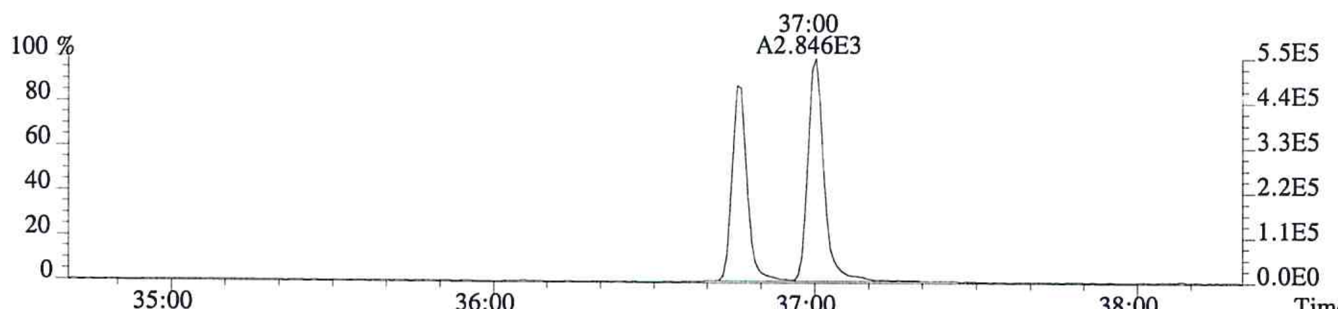
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



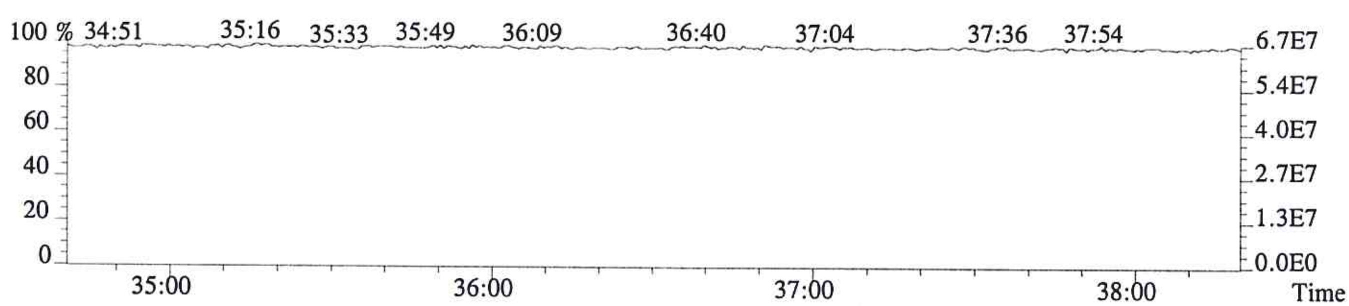
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
04072016SJGW14

Run #12 Filename P604010 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:07:59
Processed: 7-JUL-16 10:26:15 Sample ID: E1600326-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	1.950e+03	2.562e+03	0.76	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	3.723e+03	2.354e+03	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	6.927e+02	4.206e+02	1.65	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.657e+03	5.412e+03	0.49	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	6.435e+02	8.888e+02	0.72	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	1.350e+03	1.813e+03	0.74	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	4.811e+03	6.255e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	6.939e+03	5.375e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	4.220e+02				no	0.945

EDL

$$TCDD = \frac{(1.50e{+}03 + 1.16e{+}03) \times 1000 \text{ pg } 1 \times 2.5}{(\cancel{1.350e{+}03} + \cancel{1.813e{+}03}) \times 1.0 \text{ g} \times 100 / \times 1.048 \atop (2.39e{+}05 + 3.25e{+}05)} = 11.25 \text{ ng/kg}$$

UM 07/07/16

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW14

Run #12 Filename P604010 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:07:59
Processed: 7-JUL-16 10:26:15 LAB. ID: E1600326-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	9.36e+02	*	*	2.80e+03	*
3	2,3,4,7,8-PeCDF	*	6.76e+02	*	*	1.67e+03	*
11	2,3,7,8-TCDD	*	1.50e+03	*	*	1.16e+03	*
18	13C-2,3,7,8-TCDF	3.37e+05	5.42e+03	6.2e+01	4.35e+05	2.86e+03	1.5e+02
19	13C-1,2,3,7,8-PeCDF	6.69e+05	1.24e+03	5.4e+02	4.21e+05	1.01e+03	4.2e+02
20	13C-2,3,4,7,8-PeCDF	1.35e+05	1.24e+03	1.1e+02	7.79e+04	1.01e+03	7.7e+01
24	13C-1,2,3,7,8,9-HxCDF	5.21e+05	8.08e+02	6.5e+02	1.06e+06	1.90e+03	5.6e+02
26	13C-1,2,3,4-TCDF	1.11e+05	5.42e+03	2.0e+01	1.43e+05	2.86e+03	5.0e+01
27	13C-2,3,7,8-TCDD	2.39e+05	8.46e+03	2.8e+01	3.25e+05	3.56e+03	9.1e+01
33	13C-1,2,3,4-TCDD	8.74e+05	8.46e+03	1.0e+02	1.17e+06	3.56e+03	3.3e+02
34	13C-1,2,3,7,8,9-HxCDD	1.38e+06	2.51e+03	5.5e+02	1.06e+06	1.20e+03	8.8e+02
35	37Cl-2,3,7,8-TCDD	7.41e+04	1.88e+03	3.9e+01			

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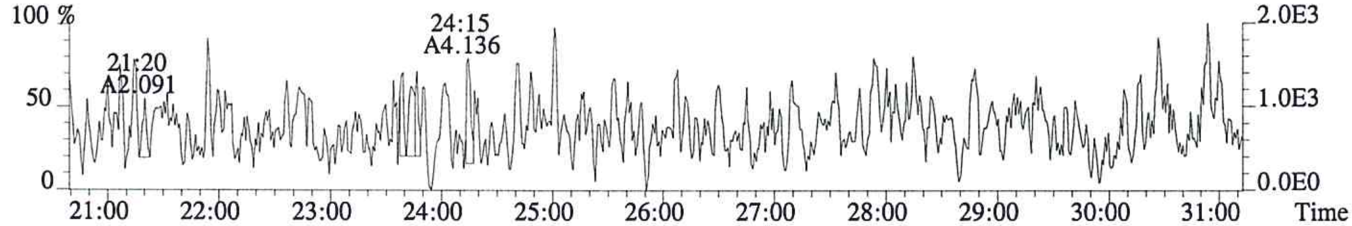
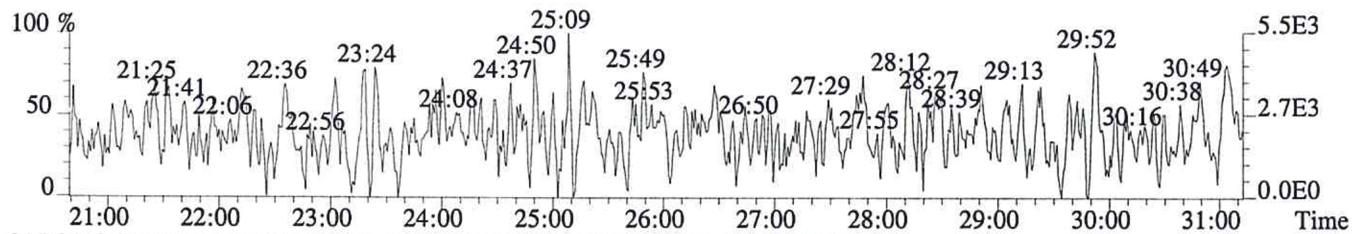
www.alsglobal.com

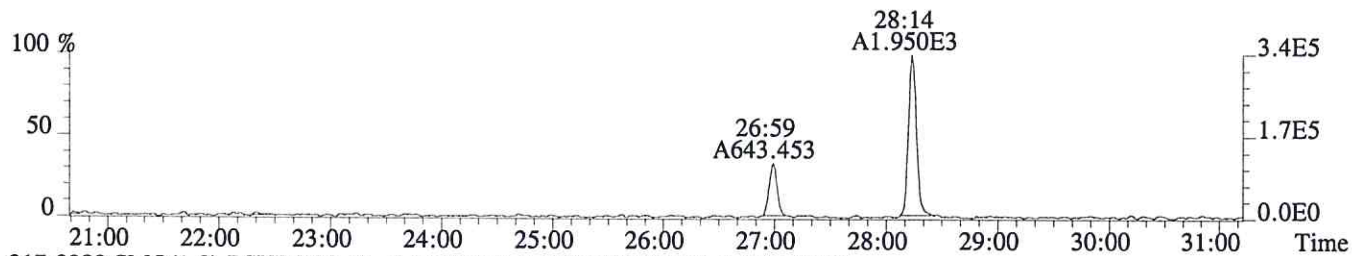
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



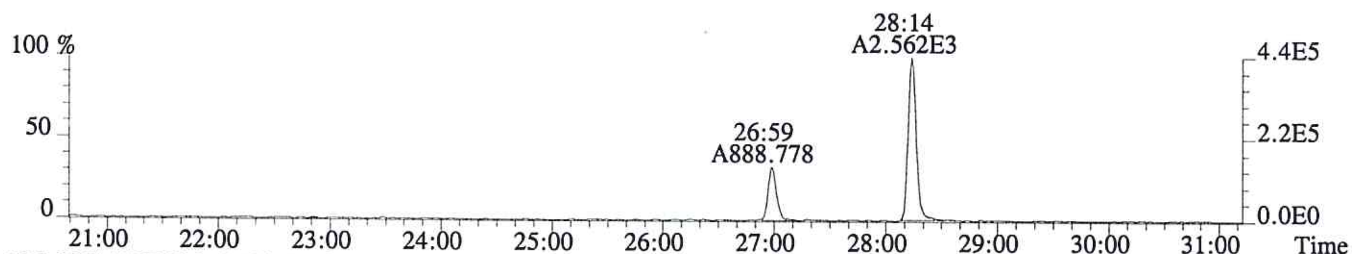
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



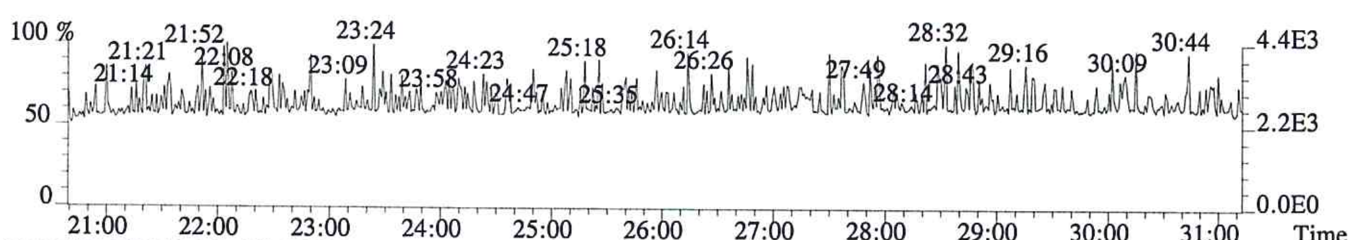
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



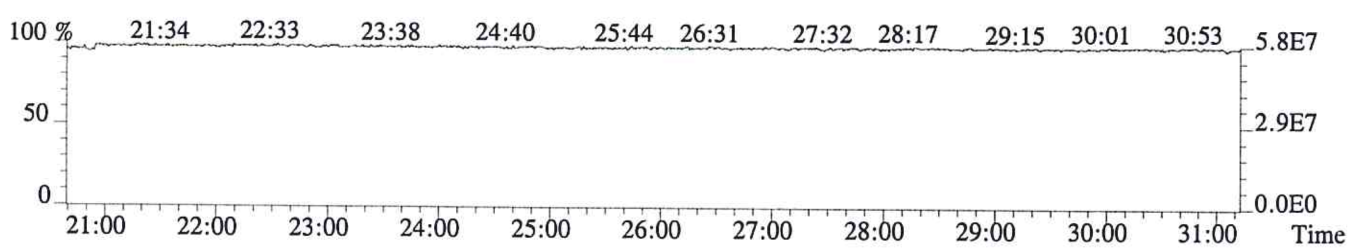
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



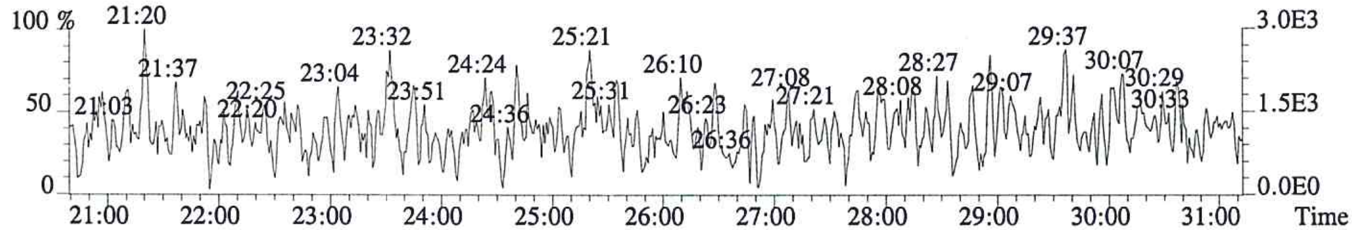
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



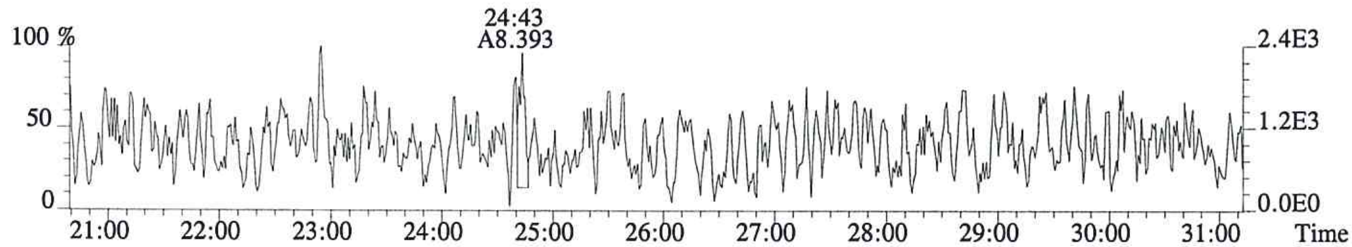
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



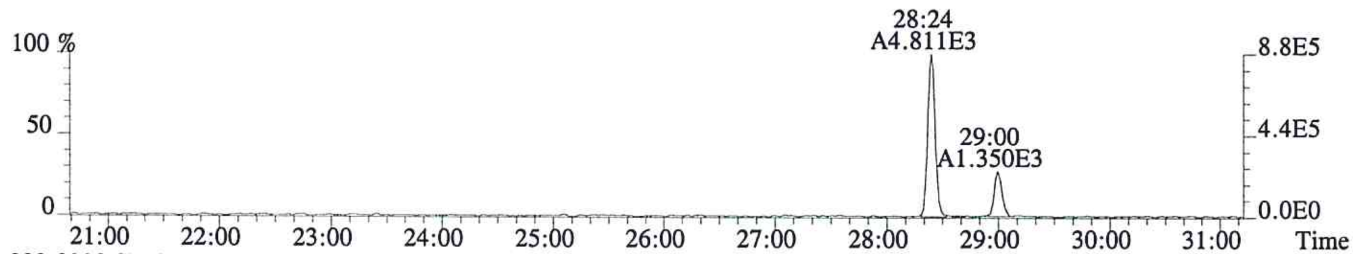
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



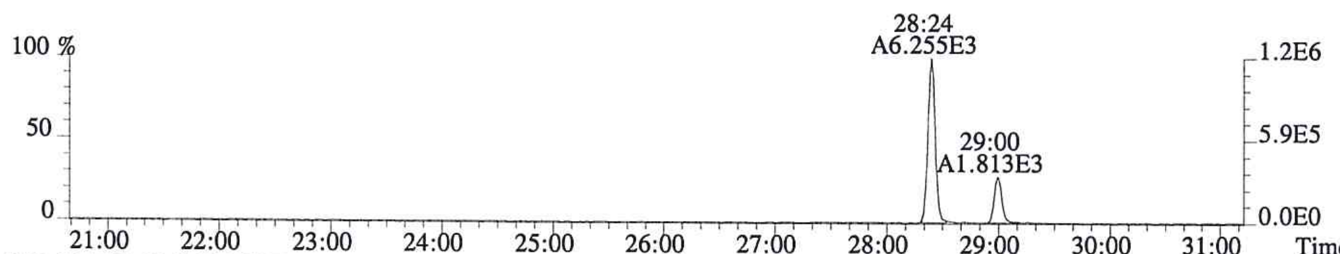
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



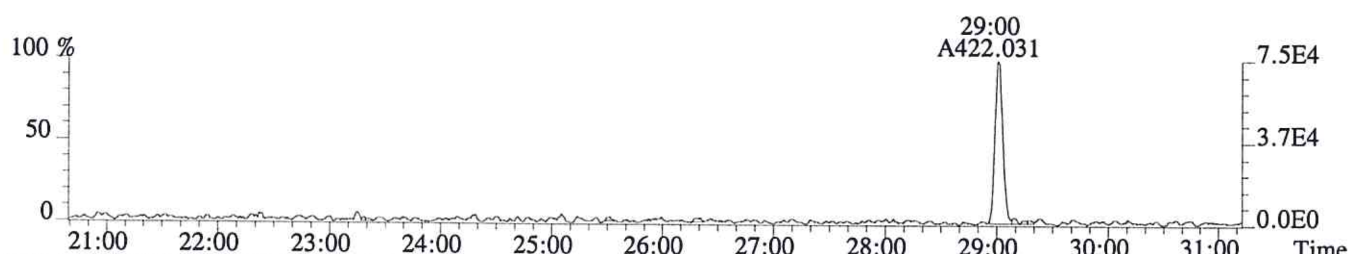
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8460.0,1.00%,F,T)



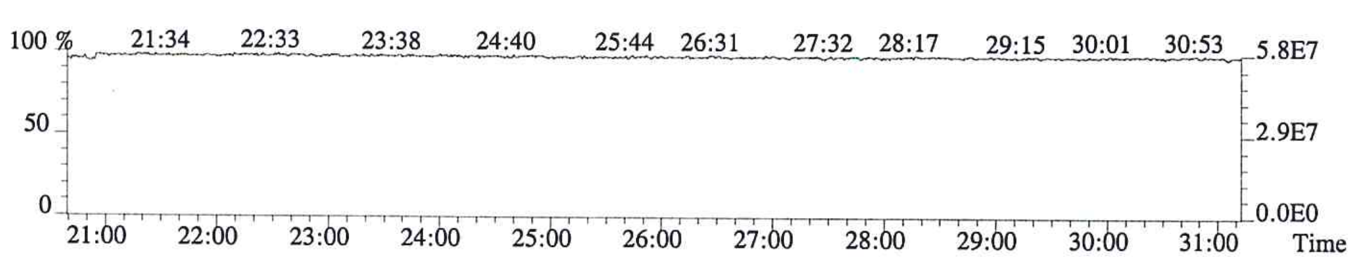
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3556.0,1.00%,F,T)



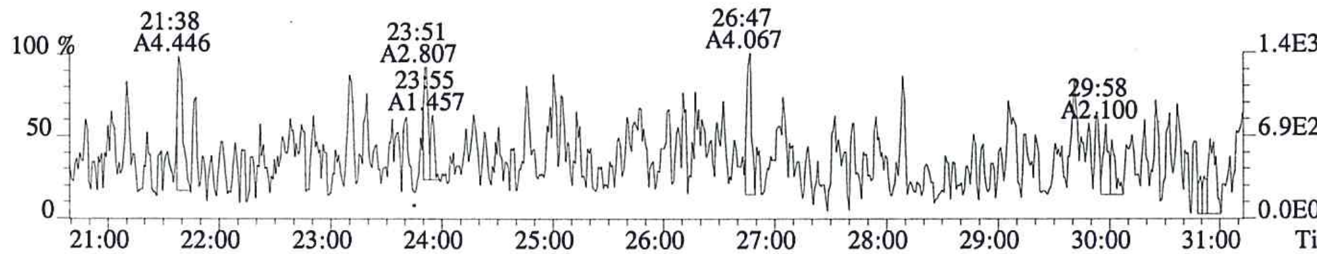
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



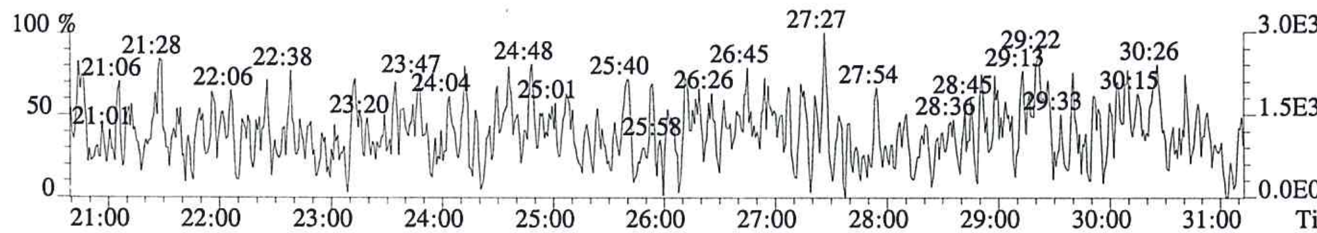
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



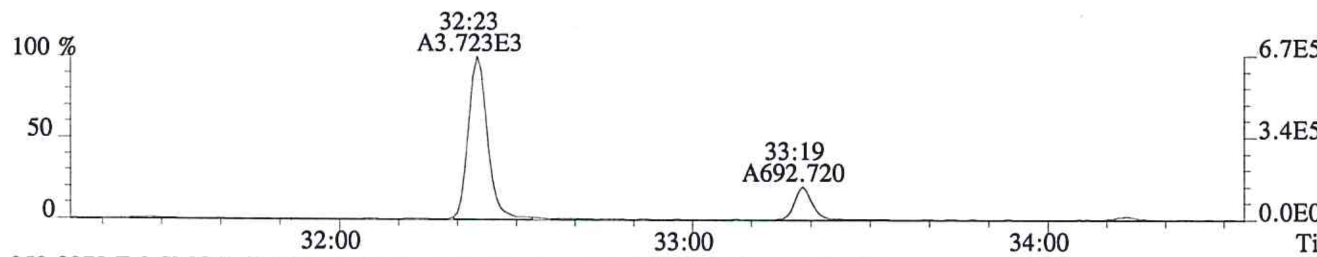
File:P604010 #1-749 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



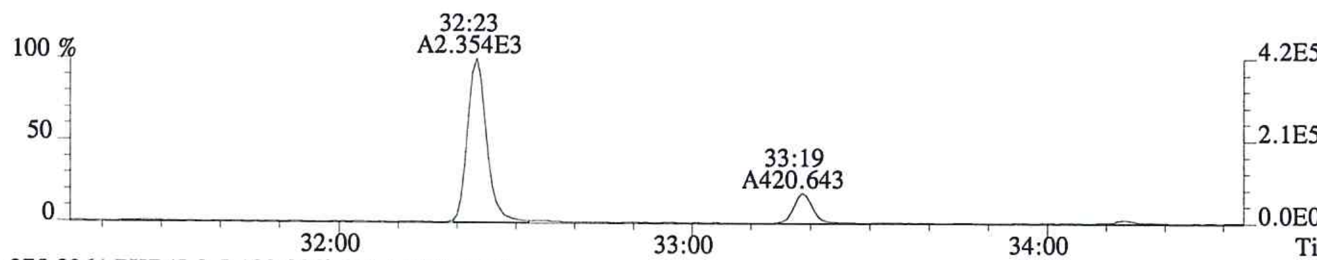
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



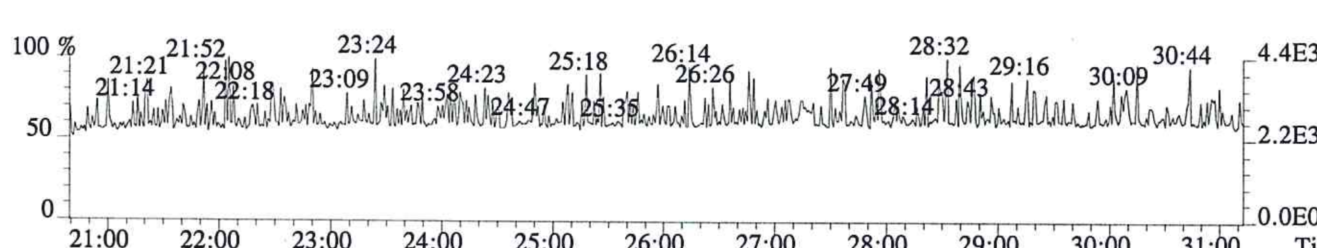
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



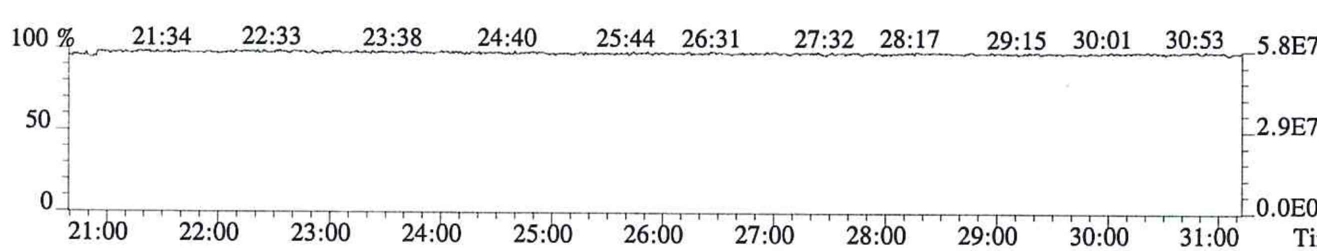
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



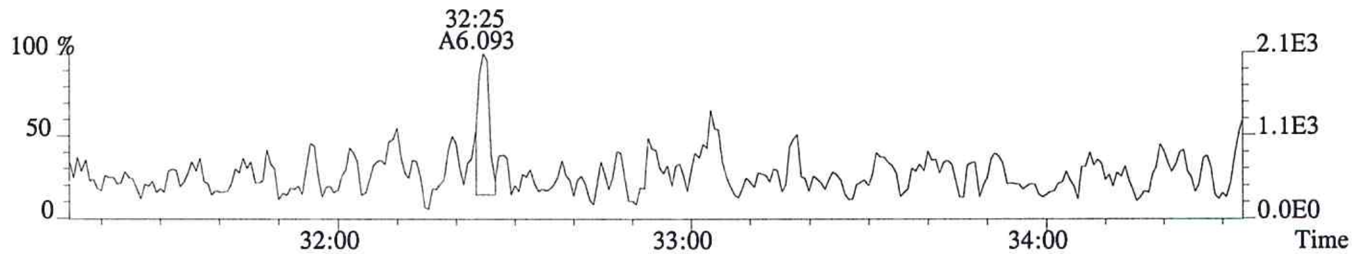
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



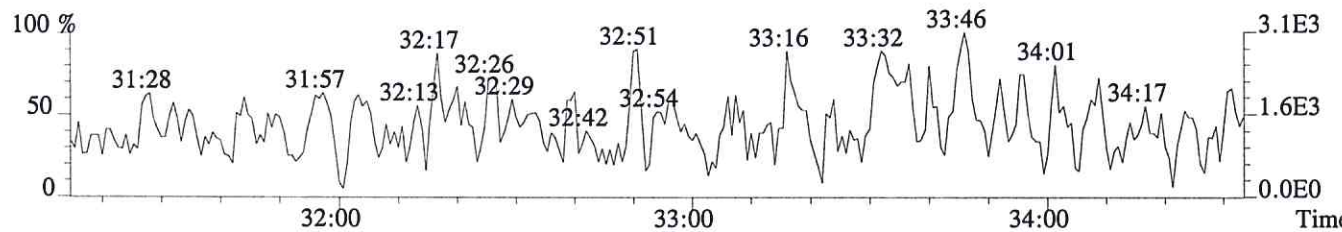
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



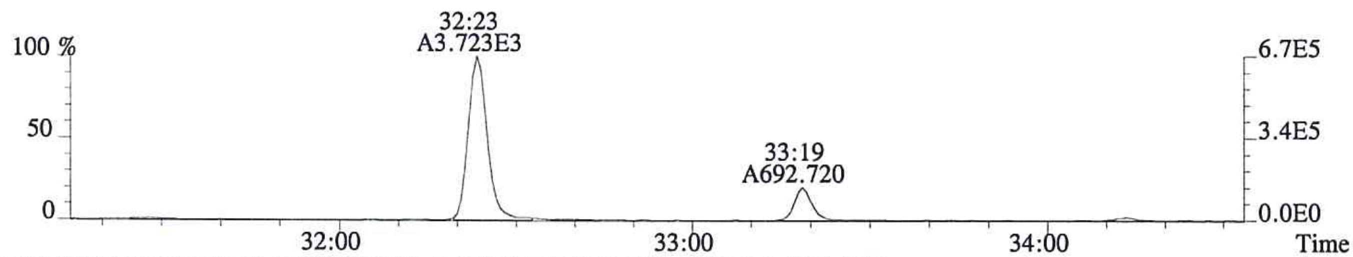
File:P604010 #1-299 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



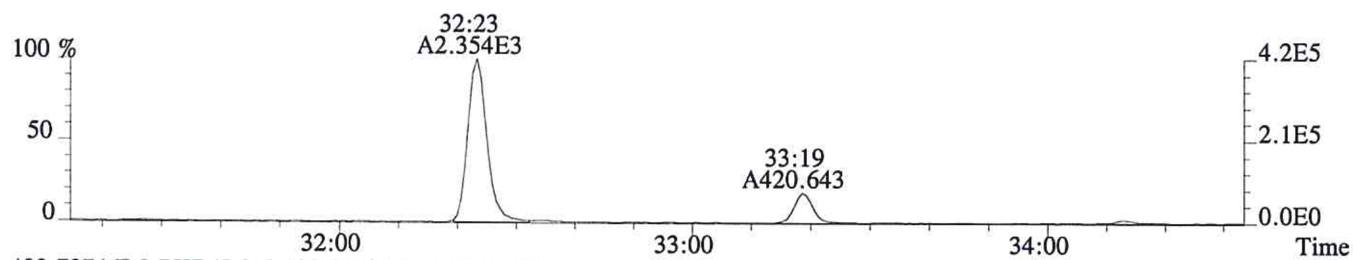
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



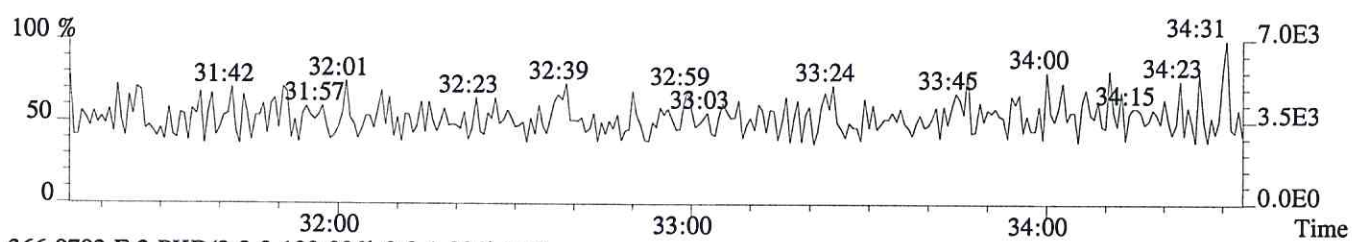
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



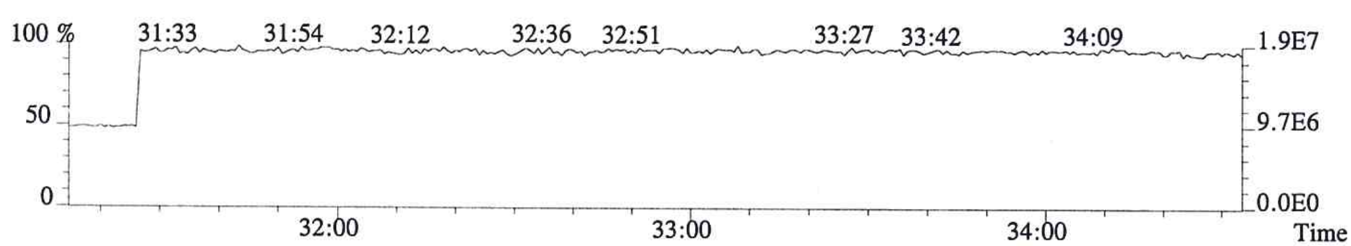
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



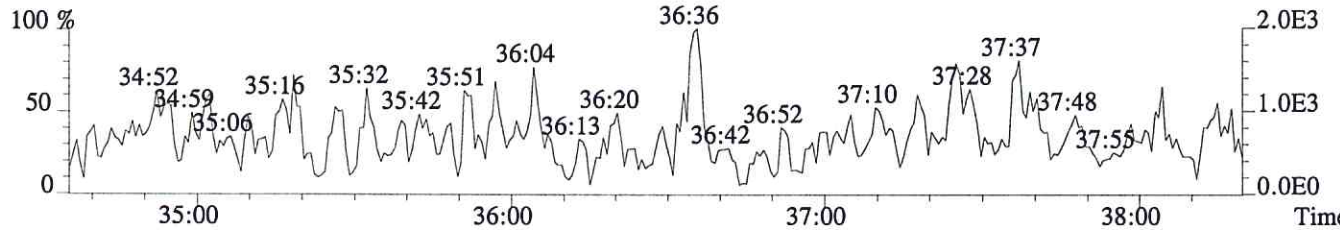
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



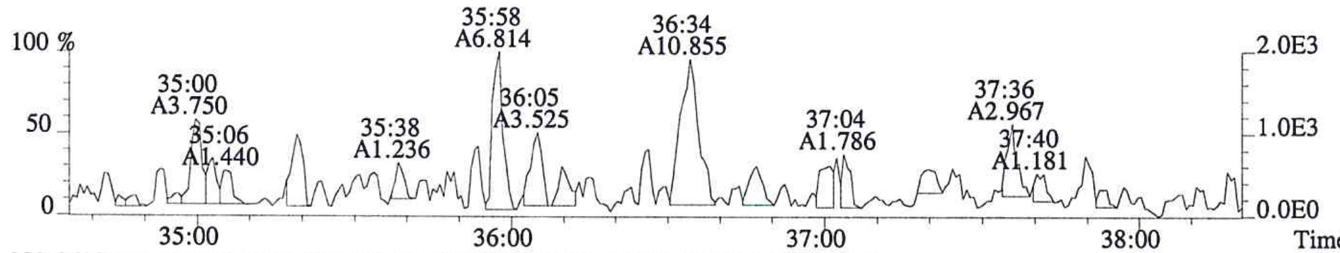
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



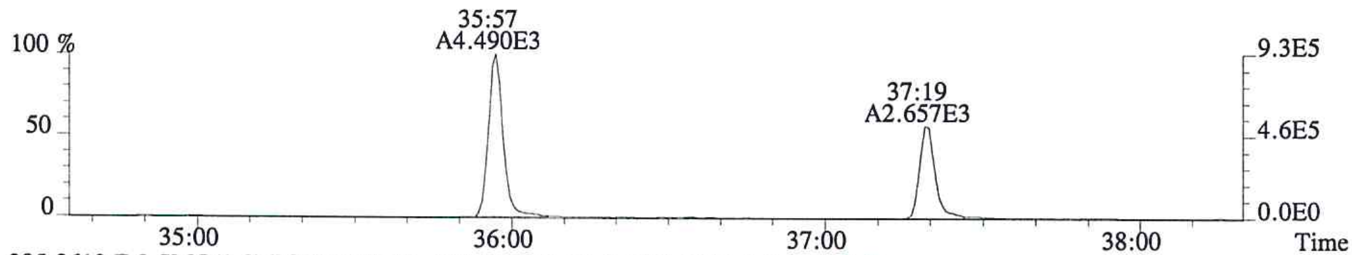
File:P604010 #1-337 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



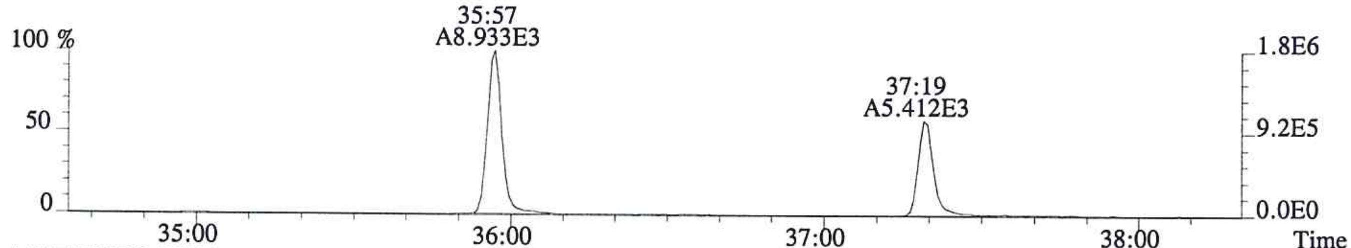
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



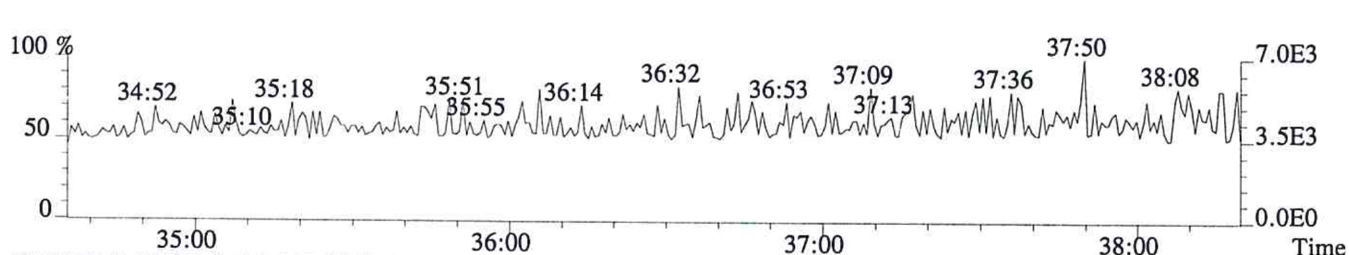
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



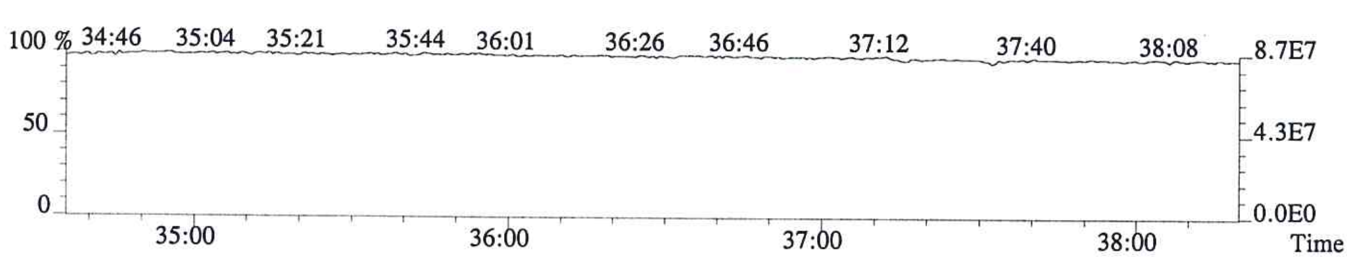
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



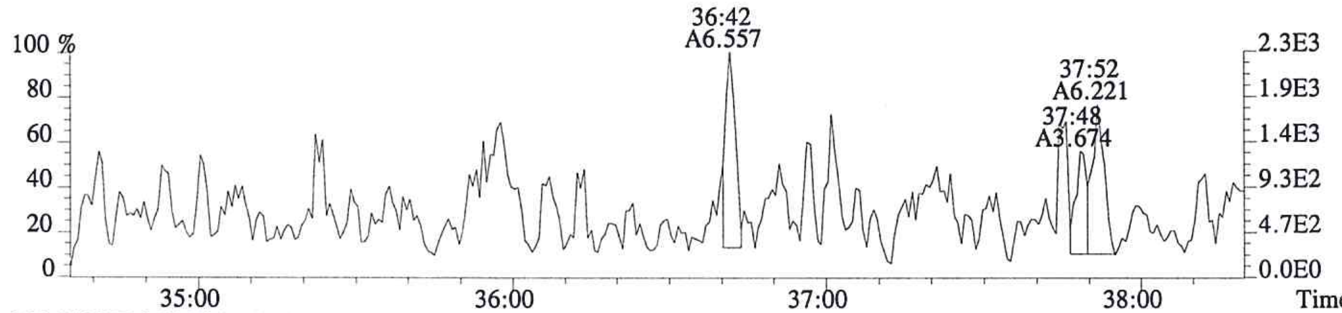
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



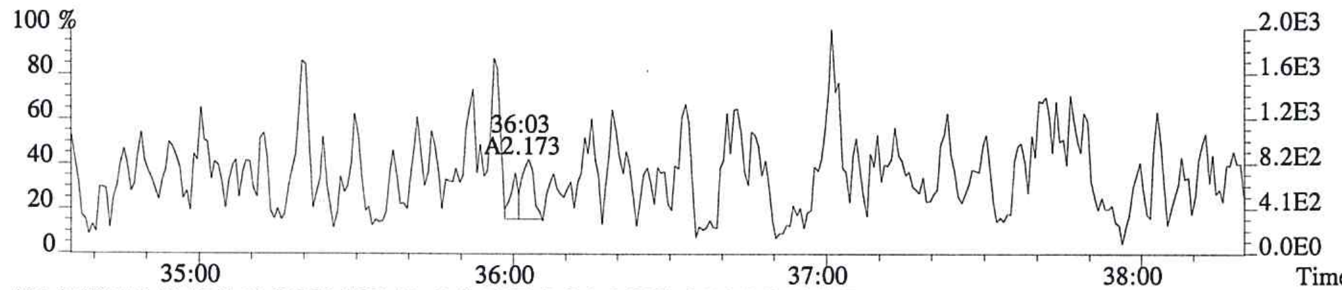
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



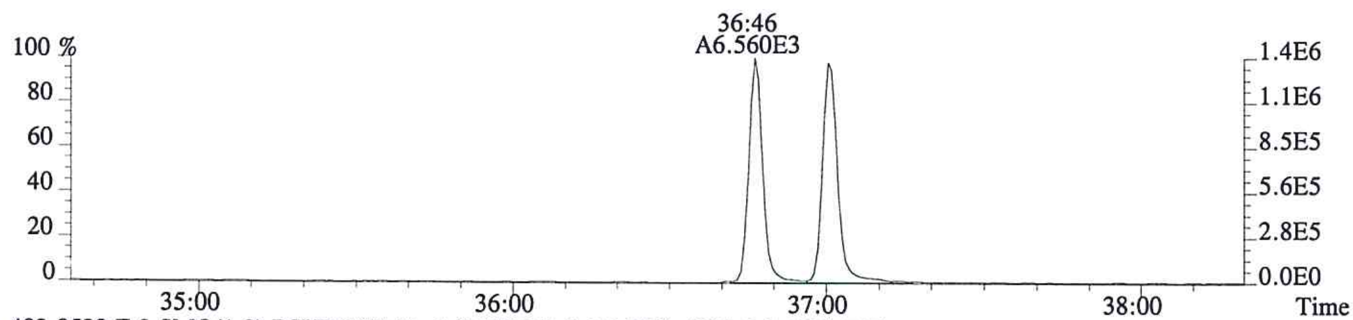
File:P604010 #1-337 Acq:26-JUN-2016 14:07:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



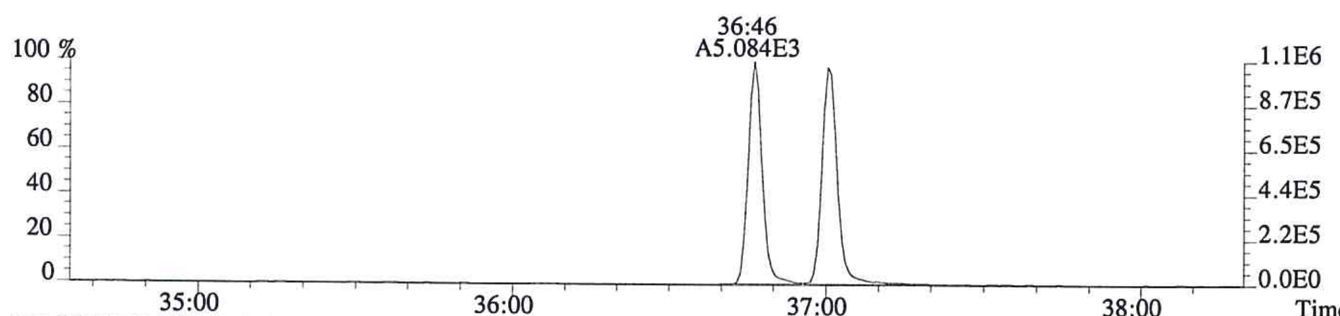
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



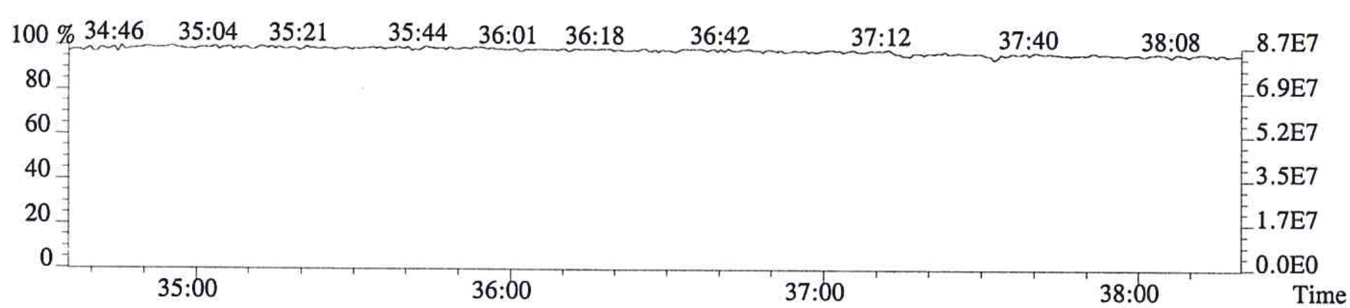
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



CLIENT ID.
04072016SJGW15

Run #13 Filename P604011 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:54:24
Processed: 7-JUL-16 10:26:16 Sample ID: E1600326-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.584e+04	1.994e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:21	2.740e+04	1.737e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.757e+03	2.932e+03	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.931e+04	3.838e+04	0.50	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:56	4.721e+03	5.988e+03	0.79	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.149e+04	1.473e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	3.901e+04	4.972e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.445e+04	3.489e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:58	3.377e+03				no	0.945

EDL

$$\text{TCDD} = \frac{(1.22e{+}03 + 1.50e{+}03) \times 1000 \text{ pg } 1 \times 2.5}{(\cancel{1.149e{+}04} + \cancel{1.473e{+}04}) \; (2.23e{+}06 + 2.82e{+}06) \times 1.0 \text{ g} \times 100 / \times 1.048} = 1.28 \text{ ng/kg}$$

um 07/07/16

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Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
04072016SJGW15

Run #13 Filename P604011 Samp: 1 Inj: 1 Acquired: 26-JUN-16 14:54:24
Processed: 7-JUL-16 10:26:16 LAB. ID: E1600326-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.28e+03	*	*	2.46e+03	*
3	2,3,4,7,8-PeCDF	*	9.32e+02	*	*	1.50e+03	*
11	2,3,7,8-TCDD	*	1.22e+03	*	*	1.50e+03	*
18	13C-2,3,7,8-TCDF	2.91e+06	6.23e+03	4.7e+02	3.61e+06	3.14e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	5.12e+06	1.12e+03	4.6e+03	3.23e+06	1.09e+03	3.0e+03
20	13C-2,3,4,7,8-PeCDF	9.10e+05	1.12e+03	8.1e+02	5.62e+05	1.09e+03	5.1e+02
24	13C-1,2,3,7,8,9-HxCDF	3.89e+06	1.14e+03	3.4e+03	7.80e+06	2.08e+03	3.8e+03
26	13C-1,2,3,4-TCDF	7.79e+05	6.23e+03	1.2e+02	9.80e+05	3.14e+03	3.1e+02
27	13C-2,3,7,8-TCDD	2.23e+06	9.68e+03	2.3e+02	2.82e+06	4.46e+03	6.3e+02
33	13C-1,2,3,4-TCDD	7.43e+06	9.68e+03	7.7e+02	9.48e+06	4.46e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	9.28e+06	2.13e+03	4.4e+03	7.45e+06	1.66e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	6.42e+05	2.12e+03	3.0e+02			

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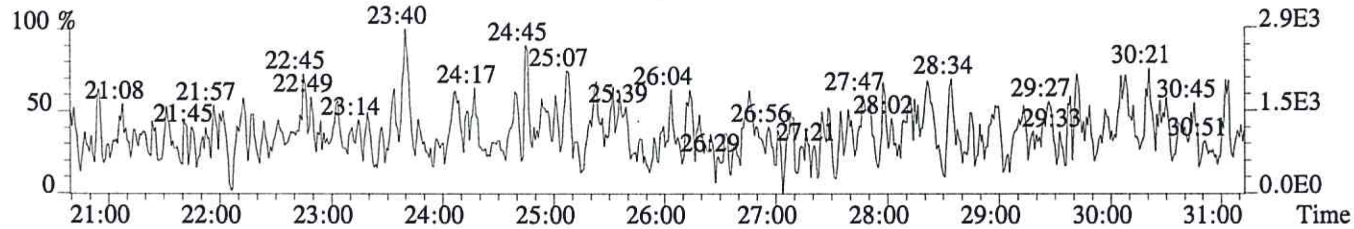
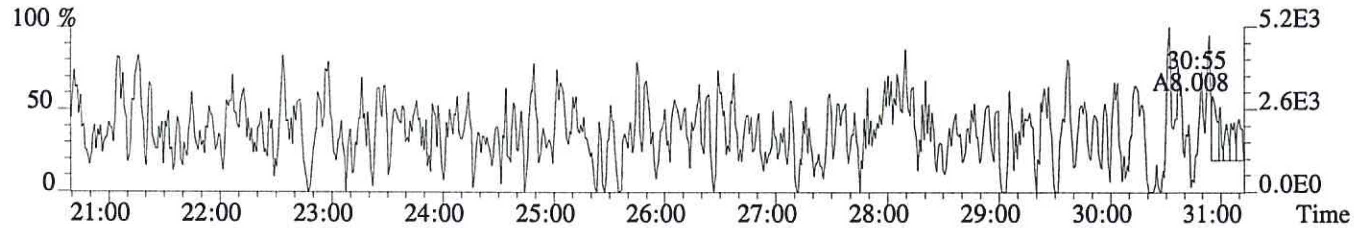
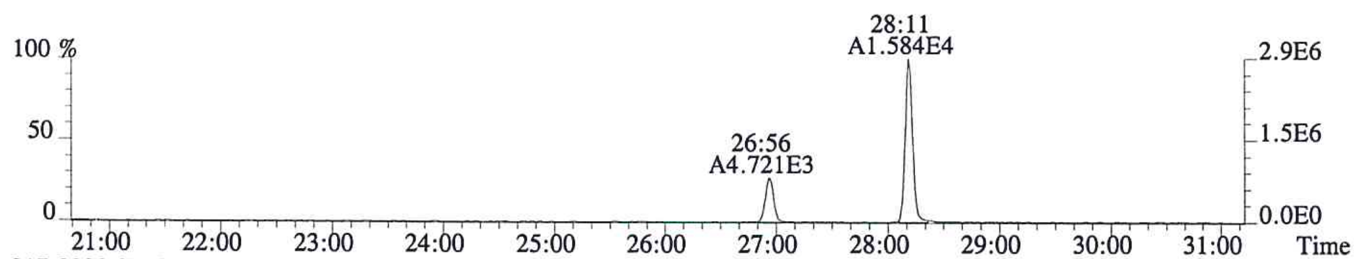
File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



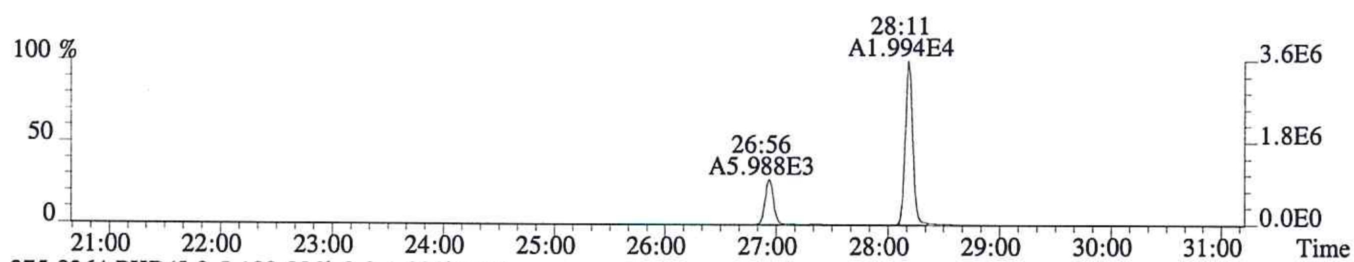
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



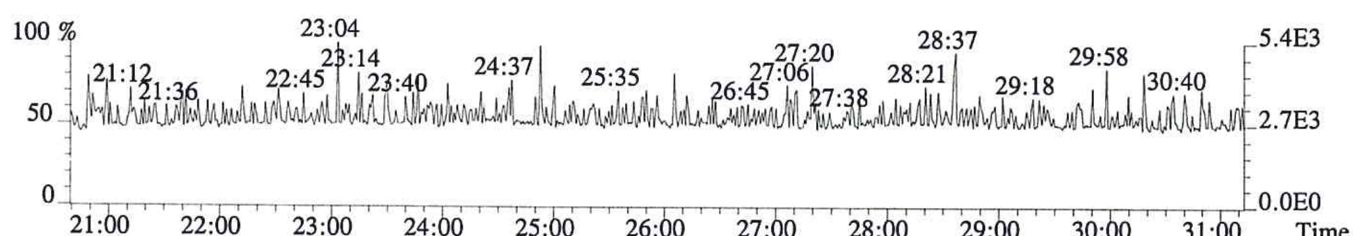
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6232.0,1.00%,F,T)



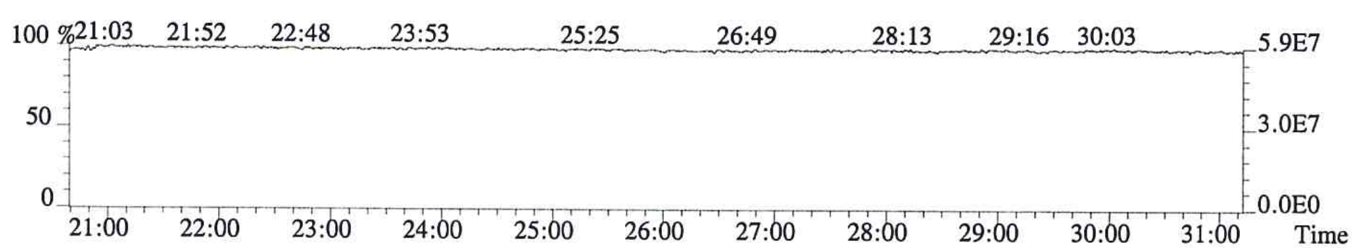
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



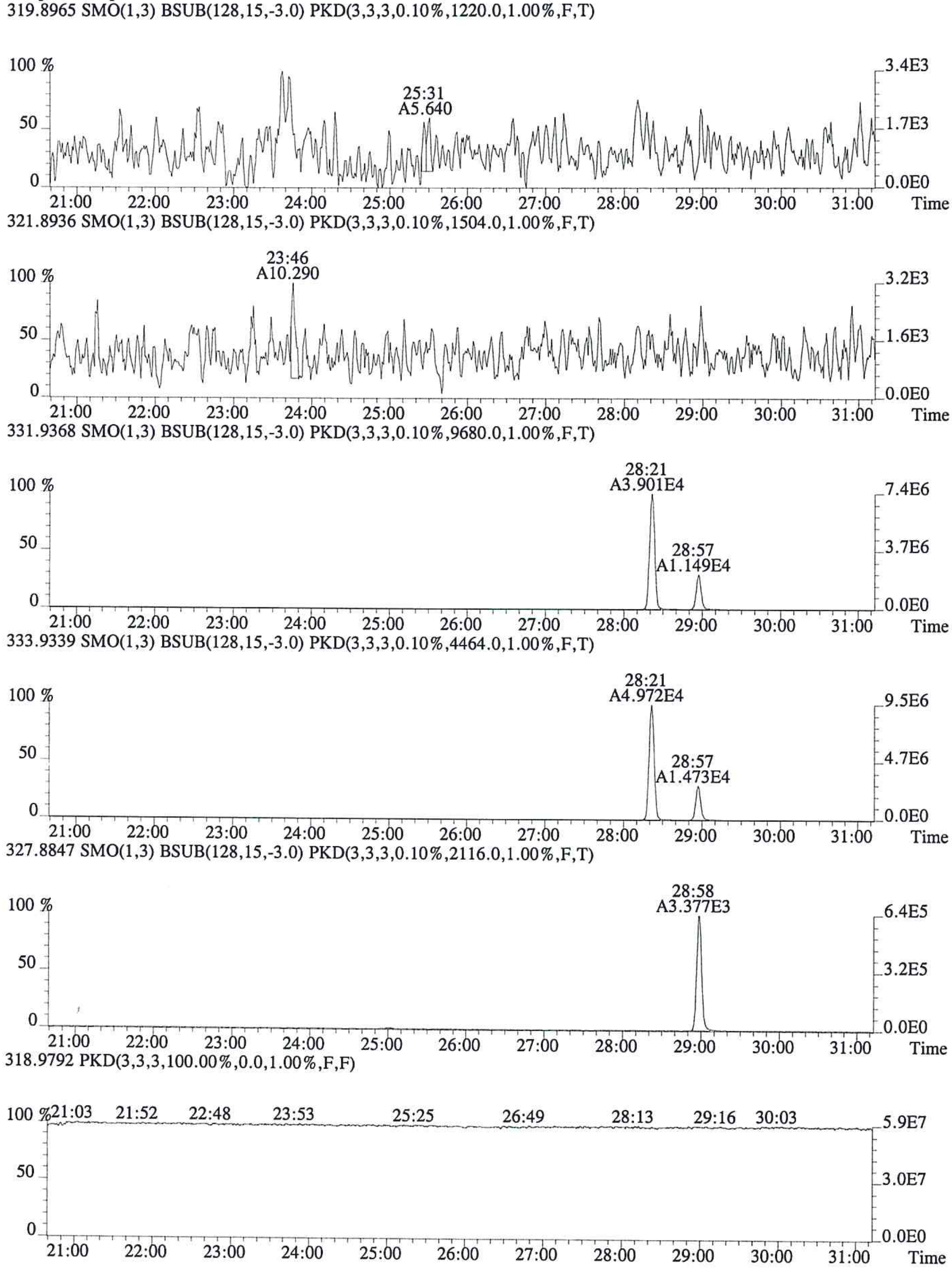
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



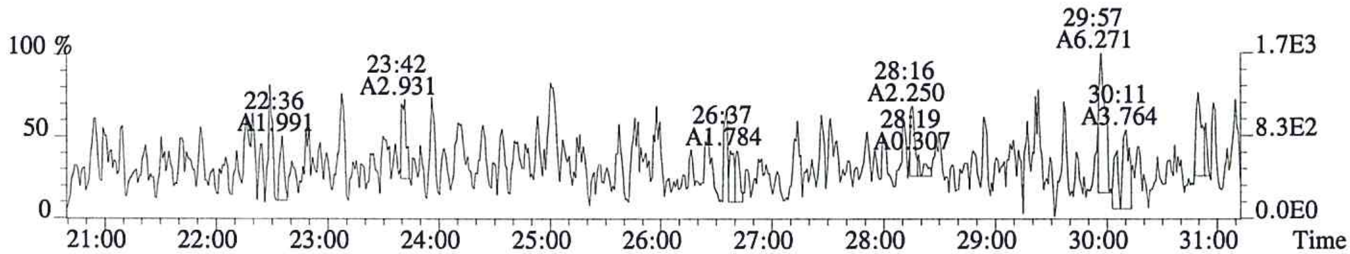
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



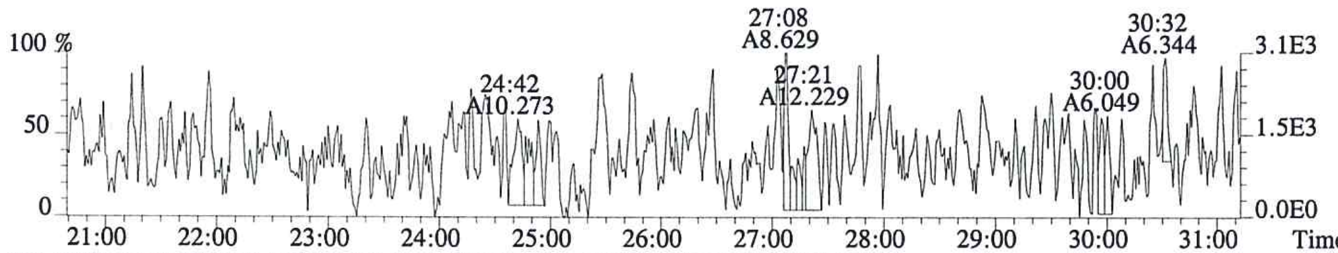
File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009



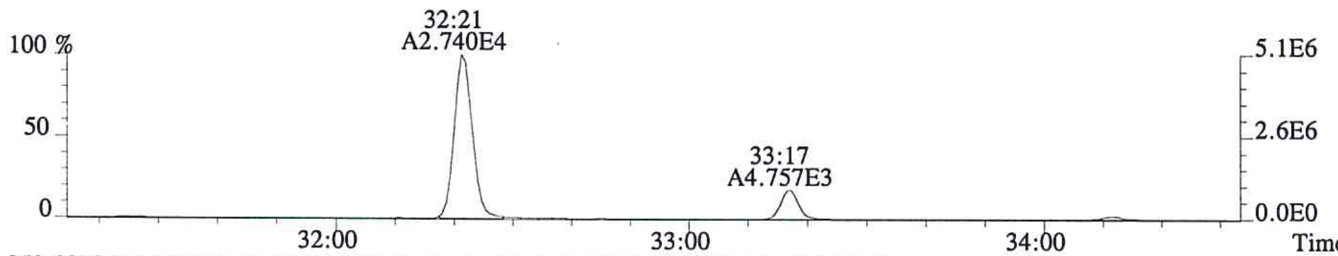
File:P604011 #1-749 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



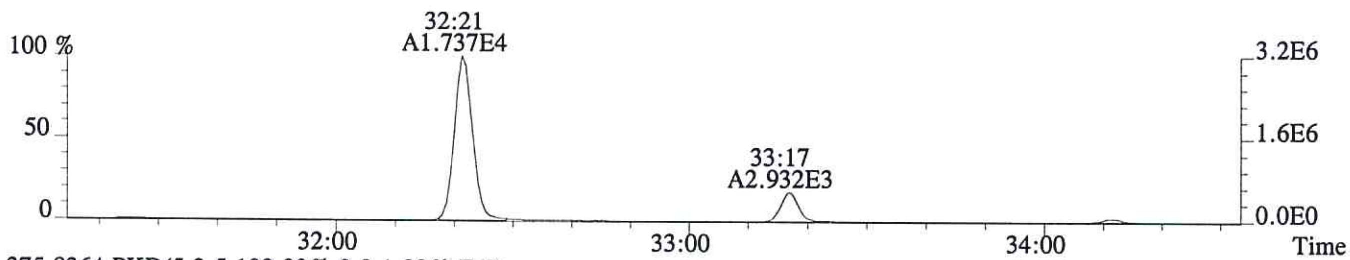
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



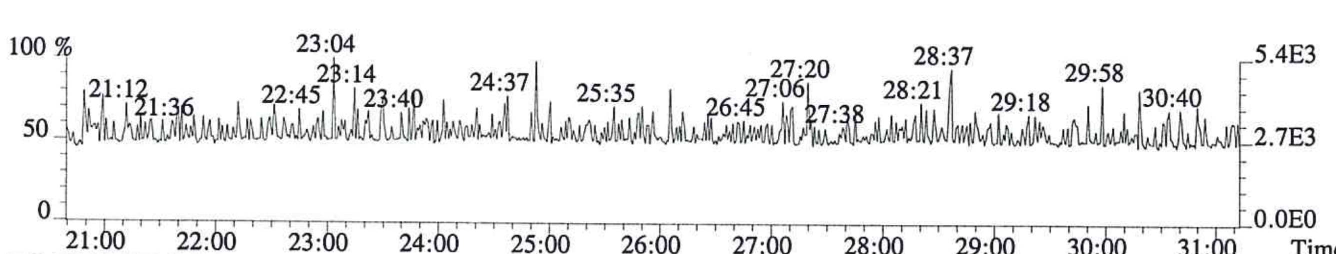
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



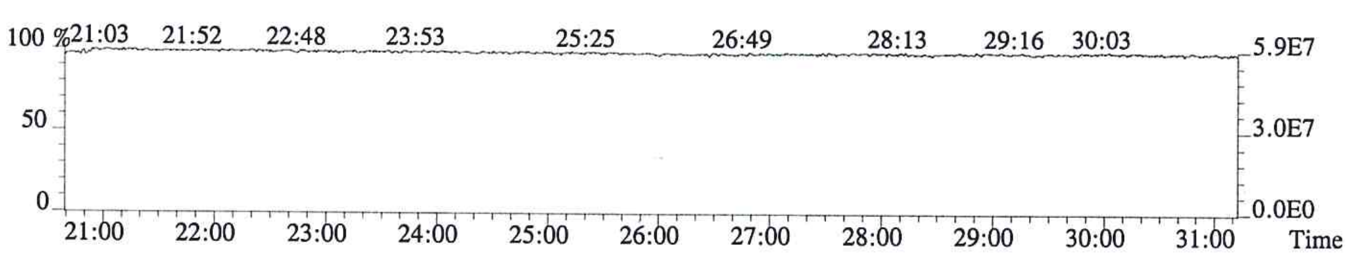
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

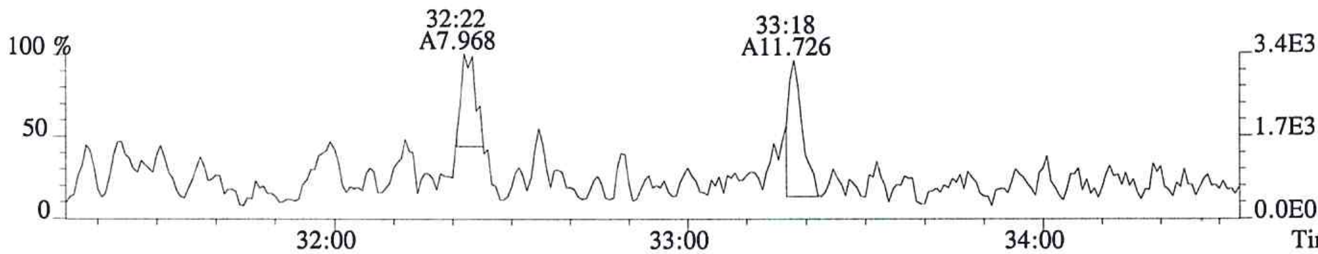


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

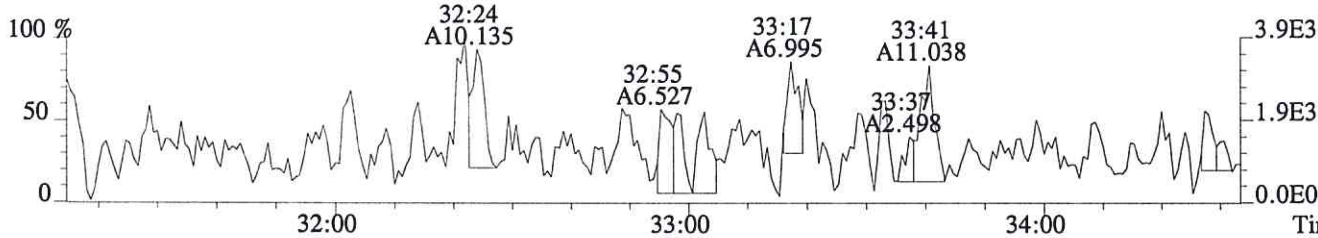


File:P604011 #1-299 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009

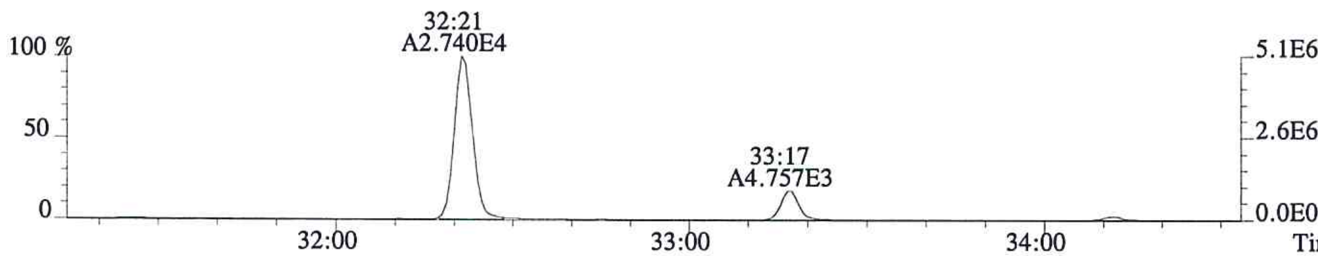
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



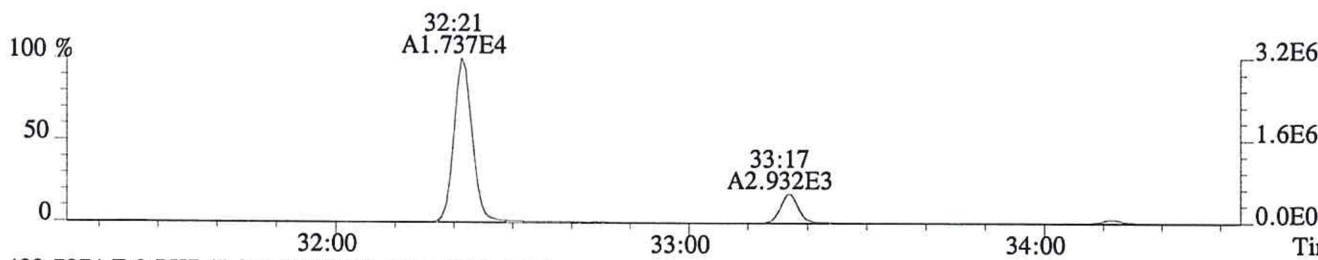
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



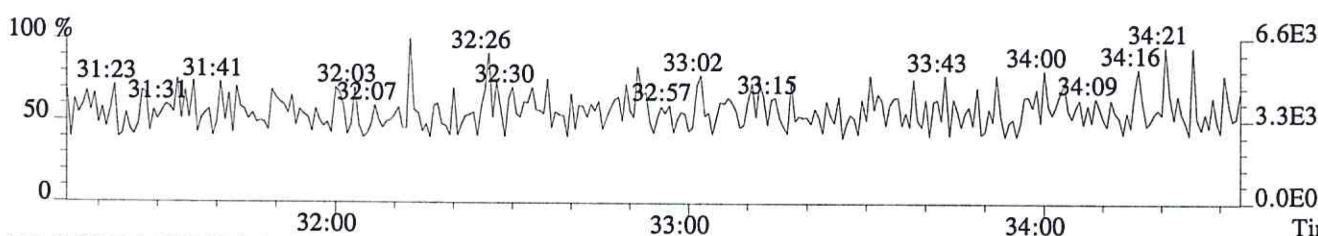
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



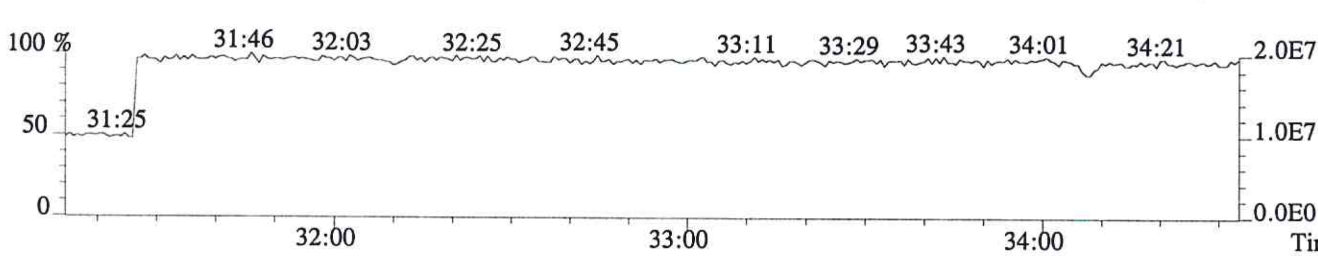
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



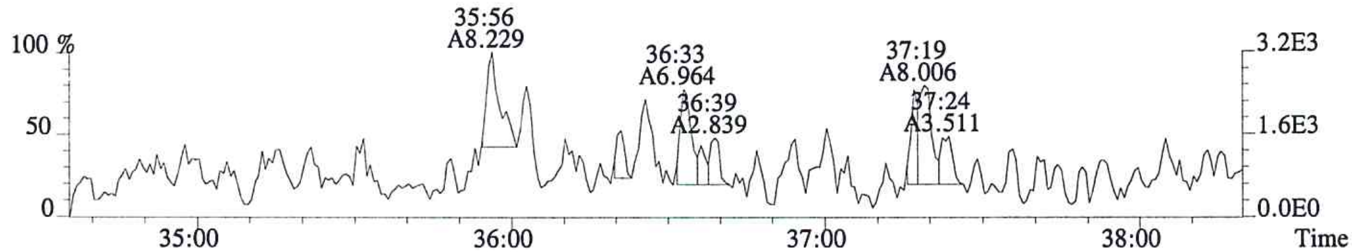
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



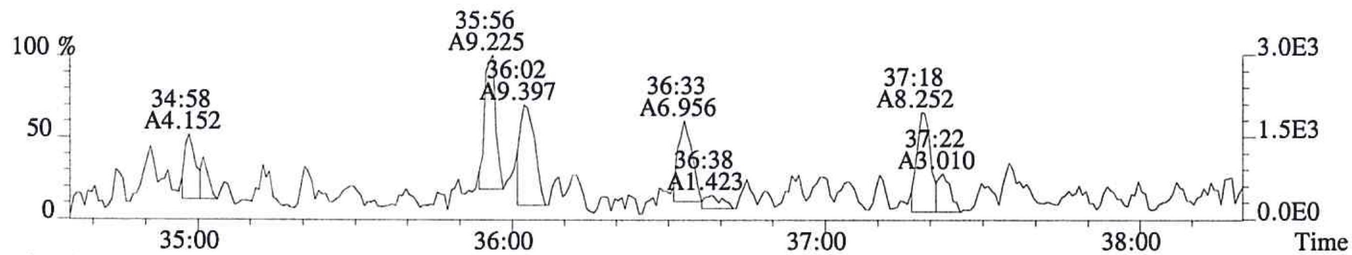
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



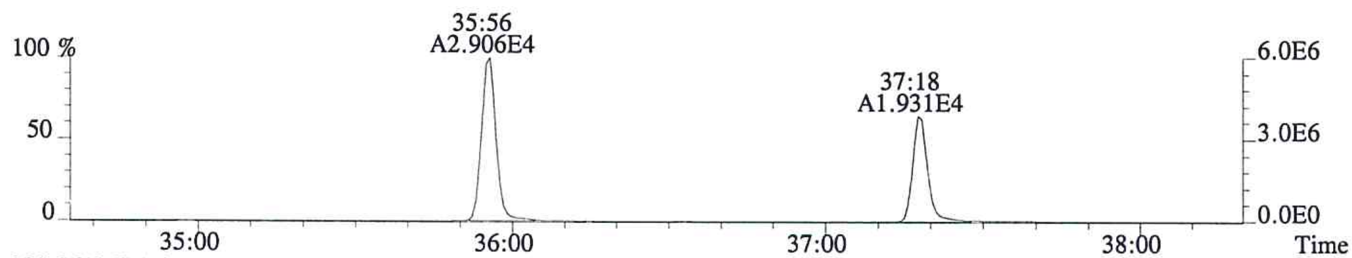
File:P604011 #1-337 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



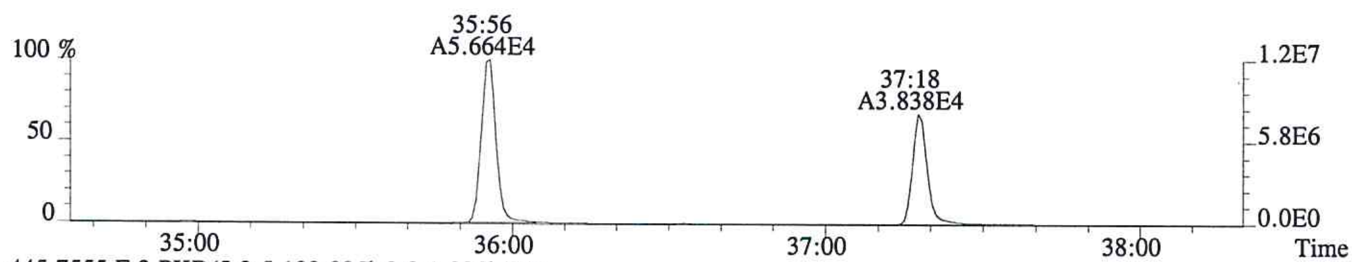
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



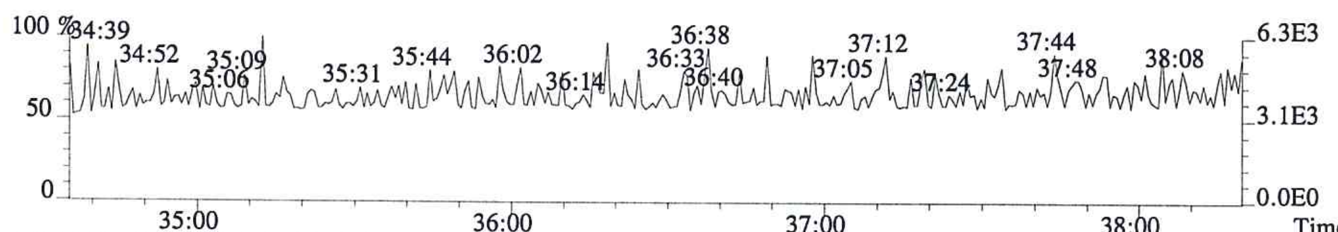
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



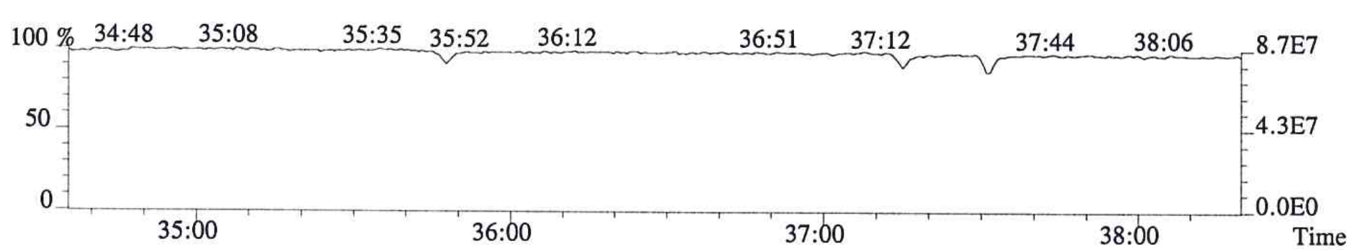
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2076.0,0.40%,F,T)



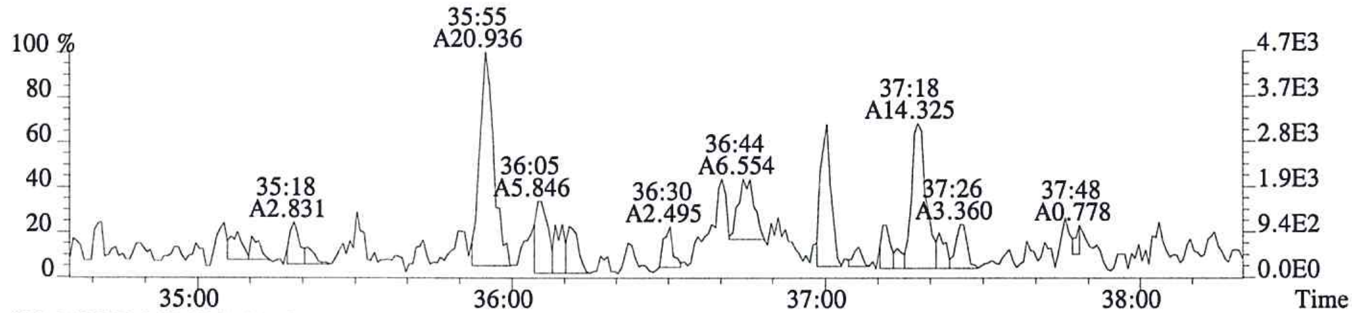
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



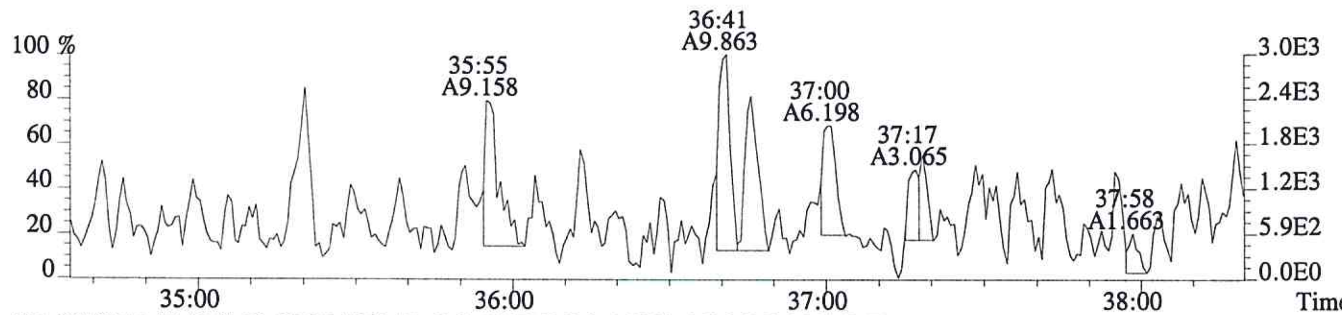
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



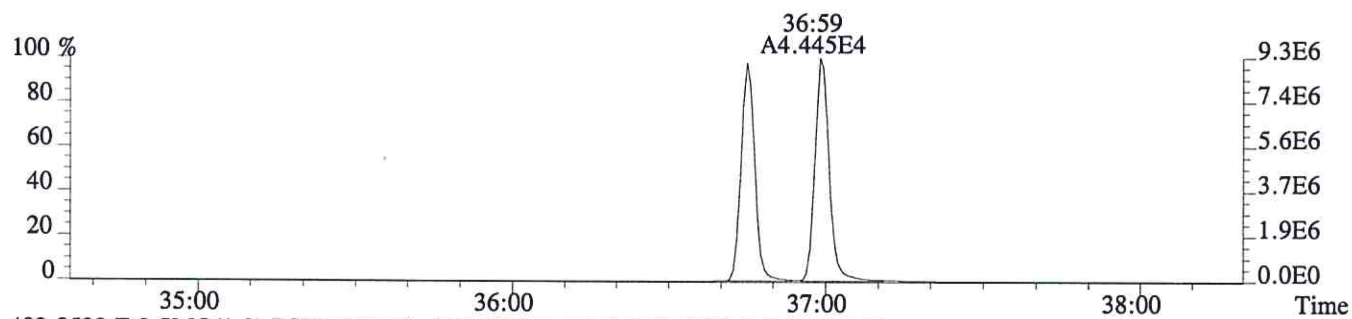
File:P604011 #1-337 Acq:26-JUN-2016 14:54:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1600326-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



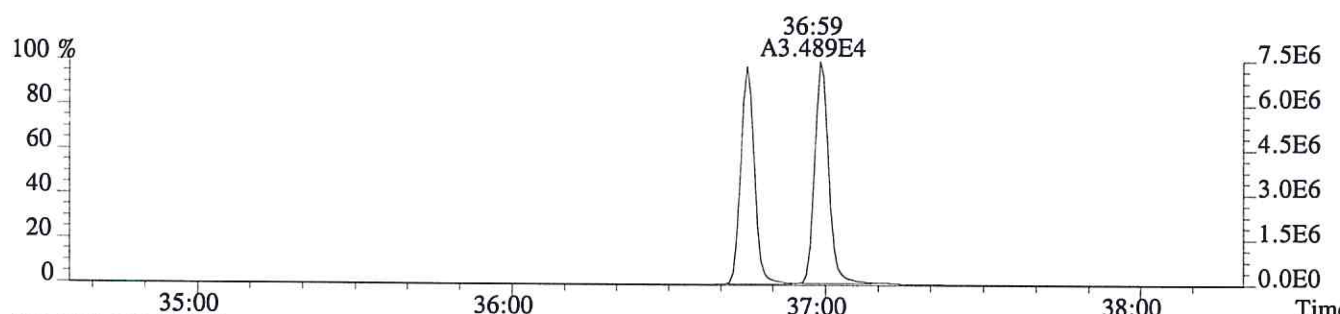
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



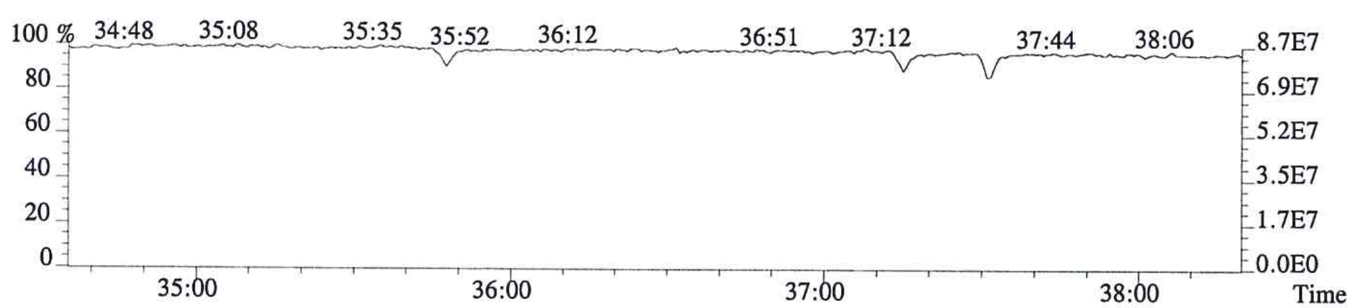
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 Sample ID: EQ1600219-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.809e+01	3.936e+01	1.22	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.349e+04	4.194e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	4.984e+04	3.137e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	4.723e+04	2.963e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.878e+04	5.649e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.559e+04	3.261e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	3.155e+04	3.965e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.547e+04	2.995e+04	1.18	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	6.727e+01				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename P603993 Samp: 1 Inj: 1 Acquired: 25-JUN-16 19:48:09
Processed: 1-JUL-16 11:44:18 LAB. ID: EQ1600219-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.18e+03	*	*	3.42e+03	*
3	2,3,4,7,8-PeCDF	9.96e+03	6.92e+02	1.4e+01	8.22e+03	1.70e+03	4.8e+00
11	2,3,7,8-TCDD	*	1.70e+03	*	*	1.42e+03	*
18	13C-2,3,7,8-TCDF	6.07e+06	6.55e+03	9.3e+02	7.58e+06	3.48e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	9.10e+06	7.38e+03	1.2e+03	5.72e+06	5.96e+03	9.6e+02
20	13C-2,3,4,7,8-PeCDF	9.20e+06	7.38e+03	1.2e+03	5.79e+06	5.96e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	5.77e+06	1.08e+03	5.3e+03	1.10e+07	2.23e+03	4.9e+03
26	13C-1,2,3,4-TCDF	*	6.55e+03	*	*	3.48e+03	*
27	13C-2,3,7,8-TCDD	4.95e+06	9.06e+03	5.5e+02	6.29e+06	3.78e+03	1.7e+03
33	13C-1,2,3,4-TCDD	6.03e+06	9.06e+03	6.7e+02	7.53e+06	3.78e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.29e+06	2.17e+03	3.4e+03	5.91e+06	1.44e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.20e+04	2.08e+03	5.8e+00			

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 39 Totals Name: Total Penta-Furans2

Run: 8 File: P603993 Sample:1 Injection:1 Function:2

Acquired: 25-JUN-16 19:48:09 Processed: 1-JUL-16 11:44:18

Mass: 339.8600 341.8570 Tot Response: 1.28e+02 RRF: 0.9596

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:23	7.46e+01	5.34e+01	1.40	yes	1.28e+02	1,2,3,7,8-PeCDF	n	n

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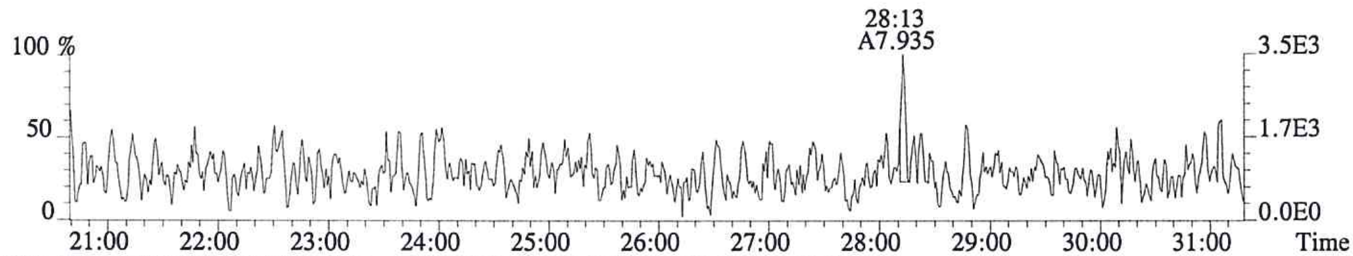
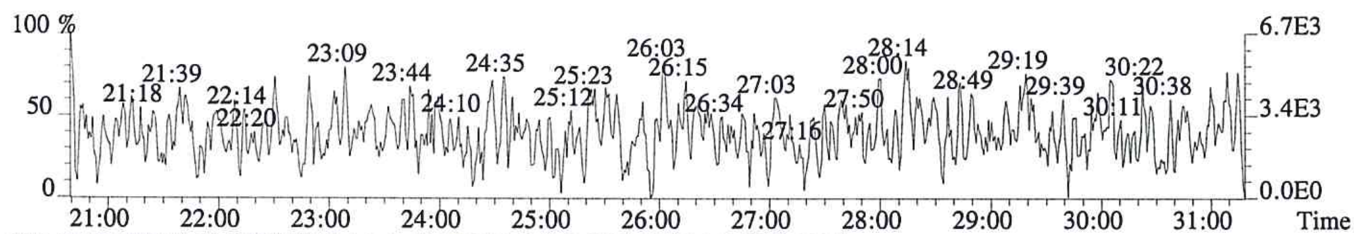
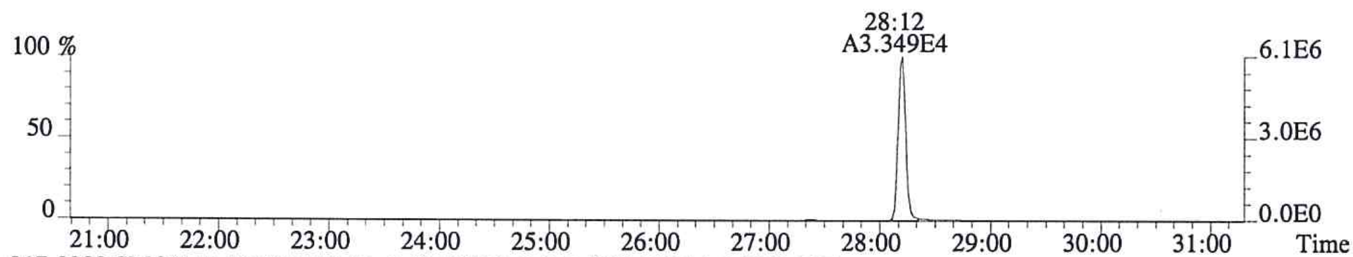
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



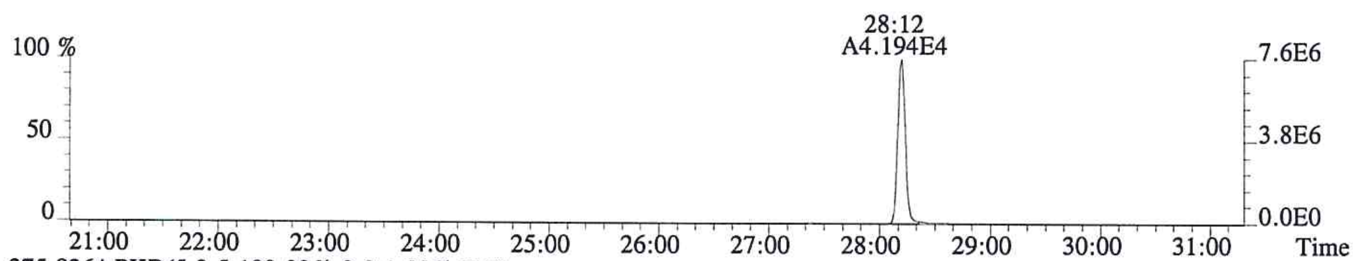
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3424.0,1.00%,F,T)



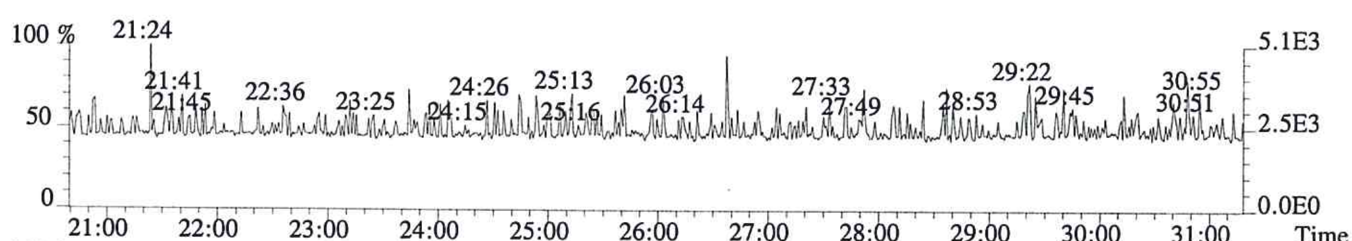
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6552.0,1.00%,F,T)



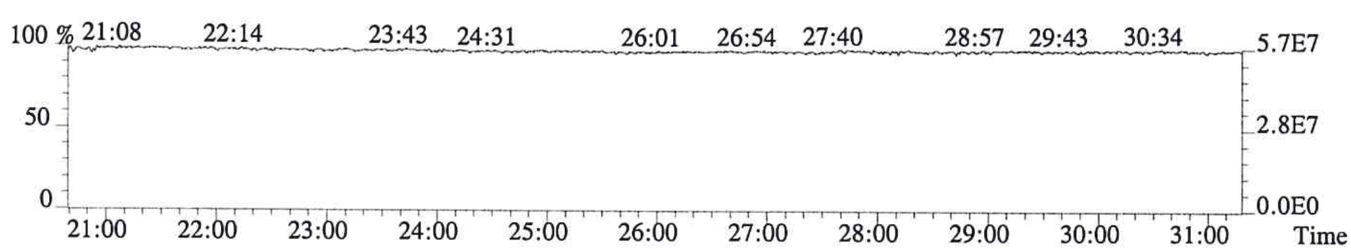
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



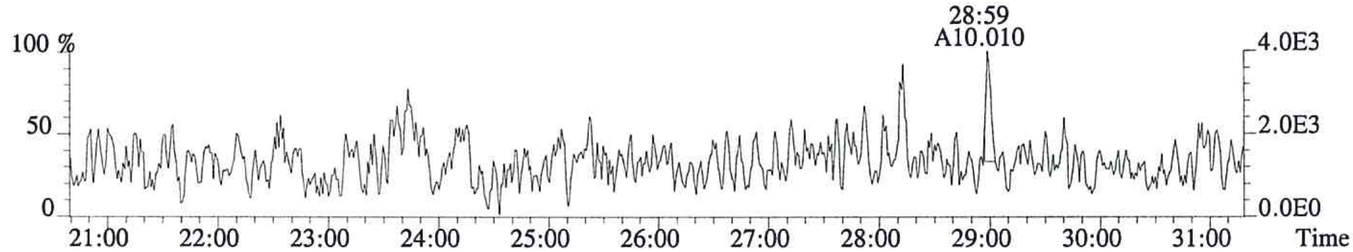
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



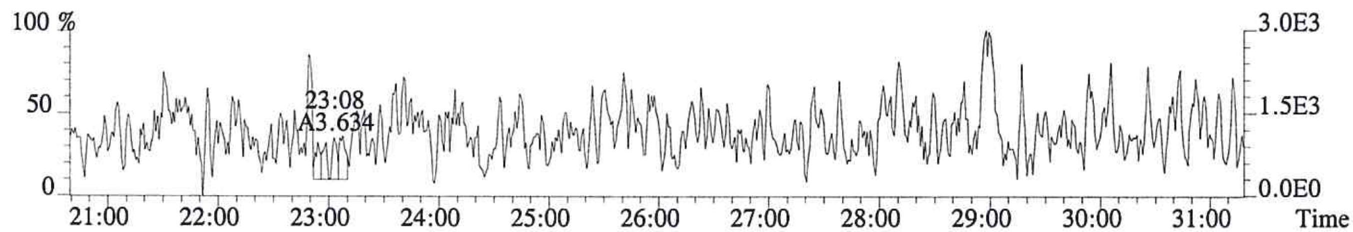
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



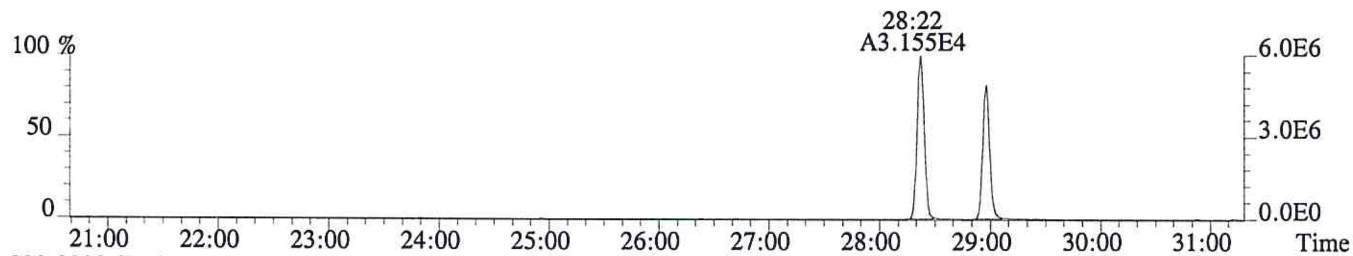
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



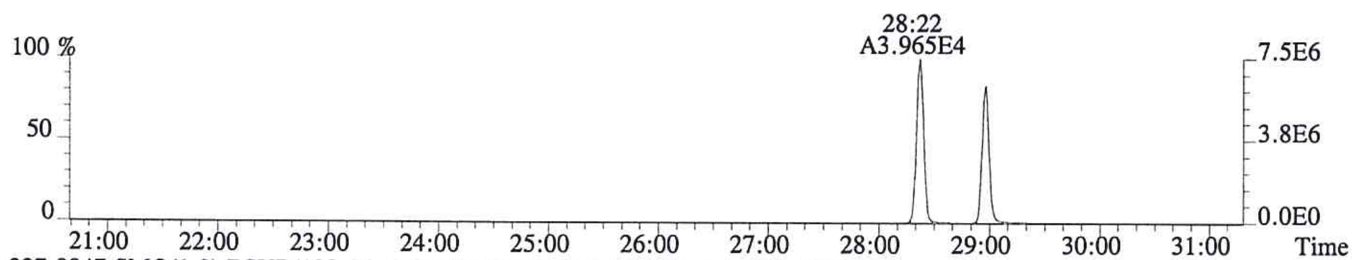
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



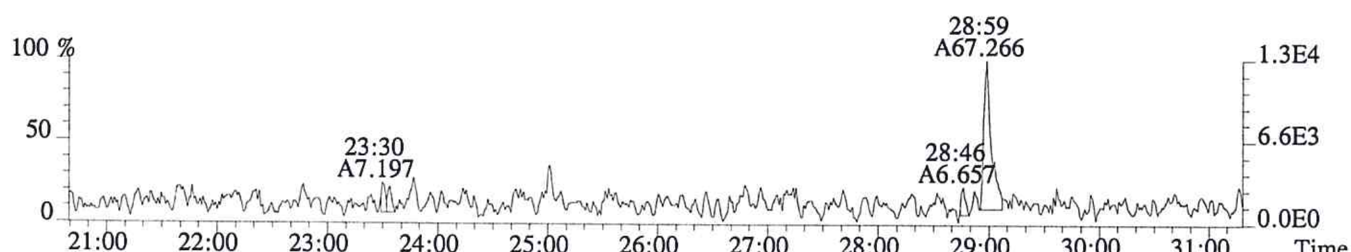
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9060.0,1.00%,F,T)



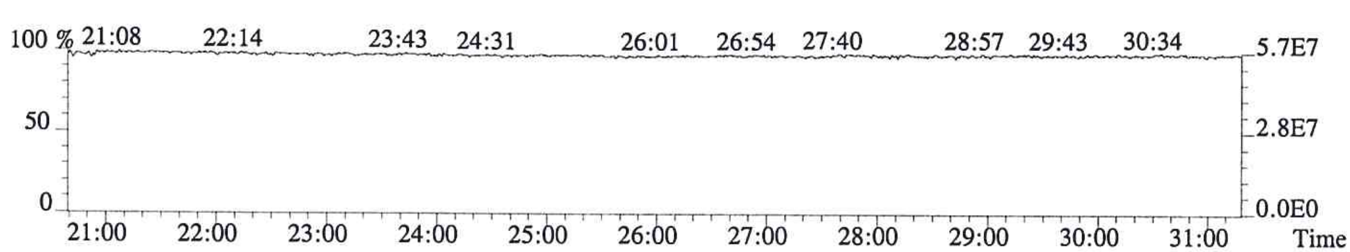
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



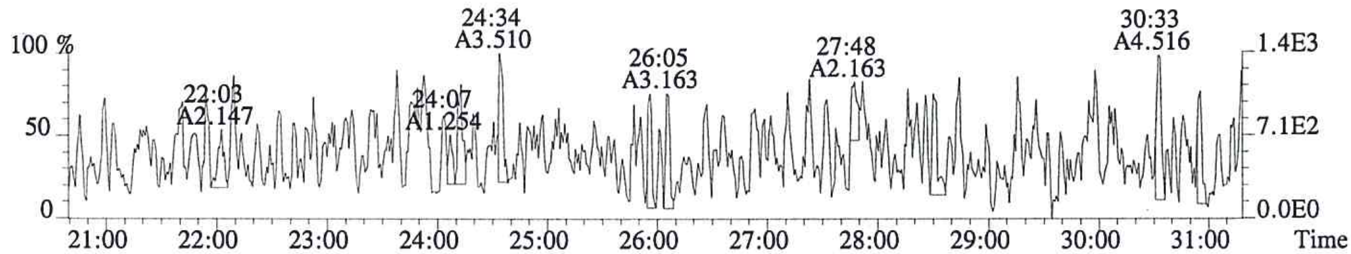
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



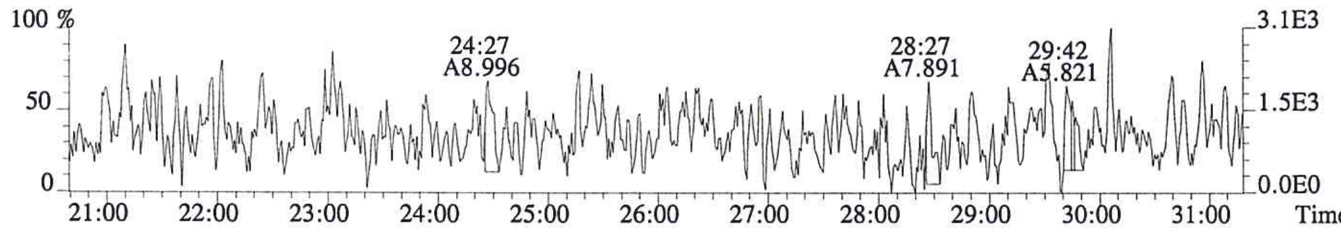
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



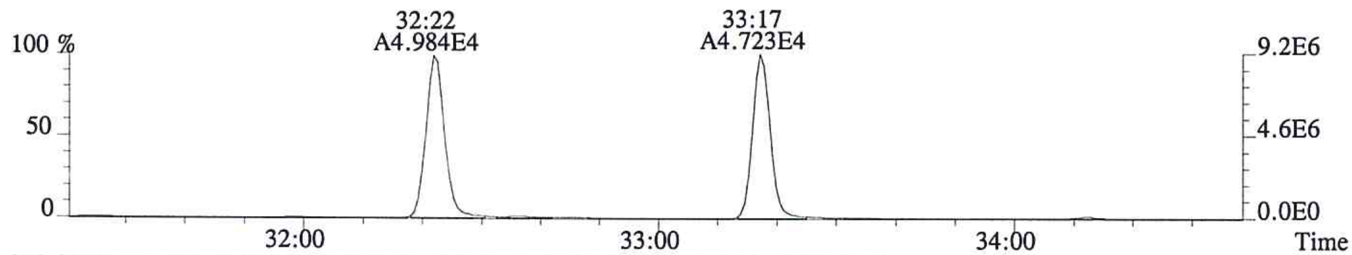
File:P603993 #1-756 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



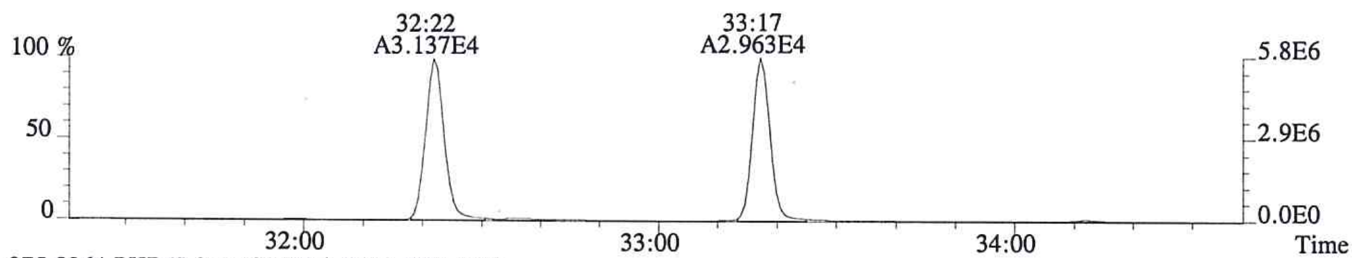
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



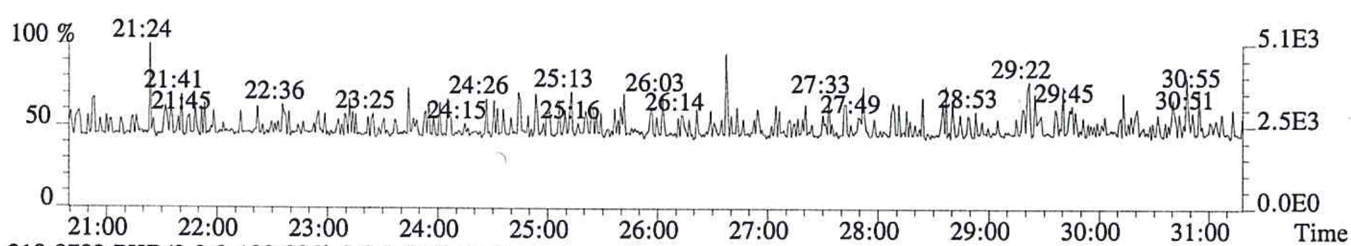
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



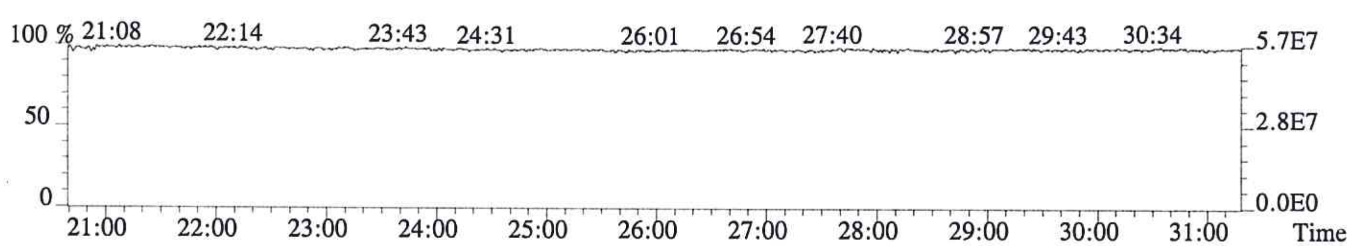
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5956.0,1.00%,F,T)



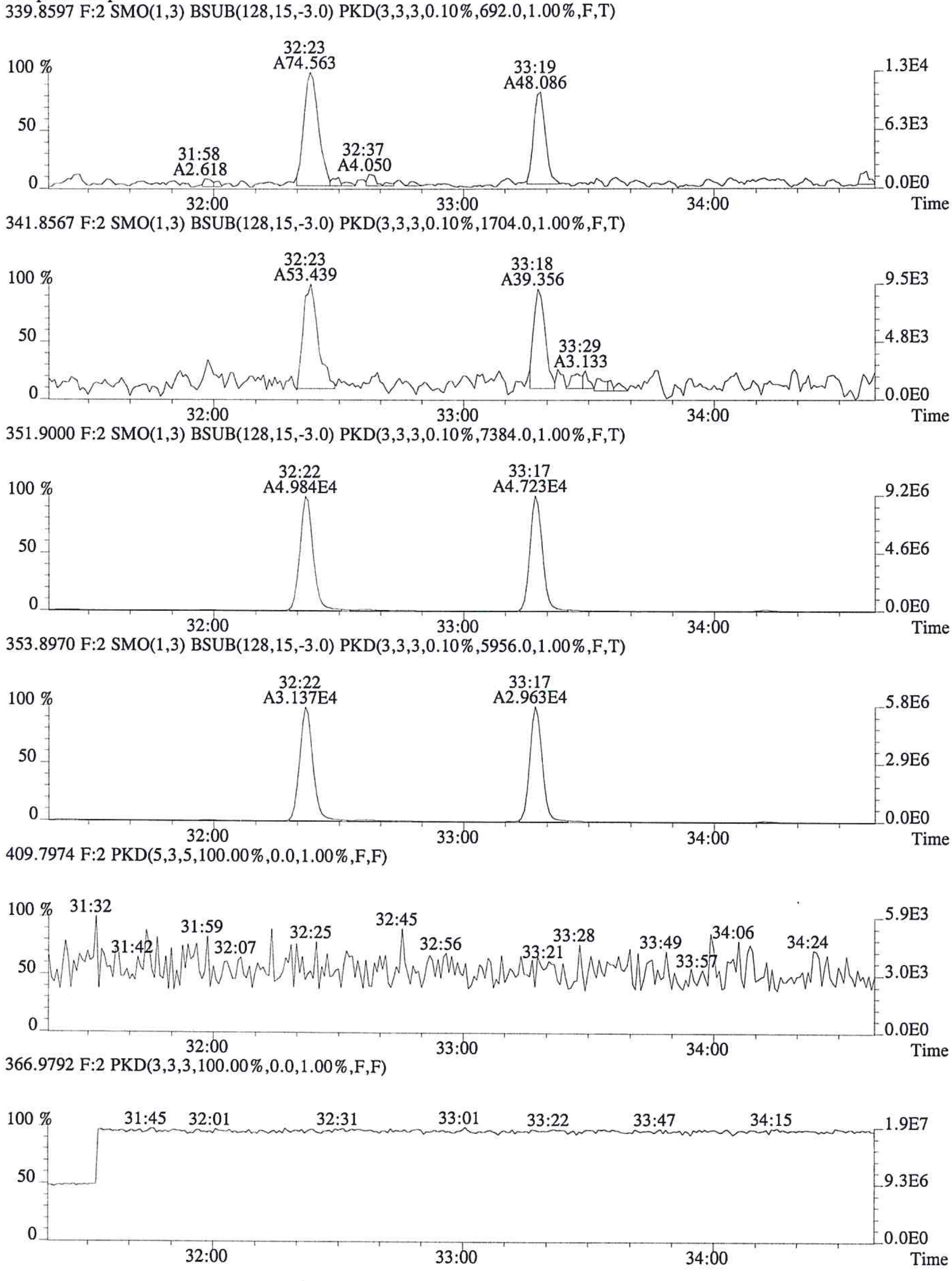
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



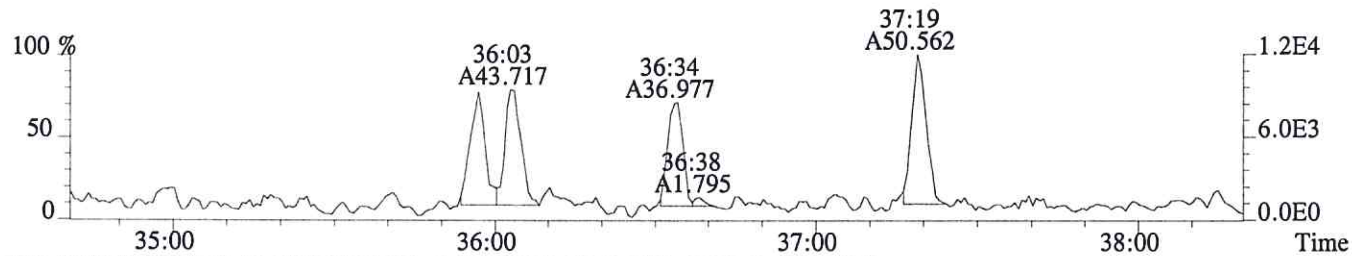
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



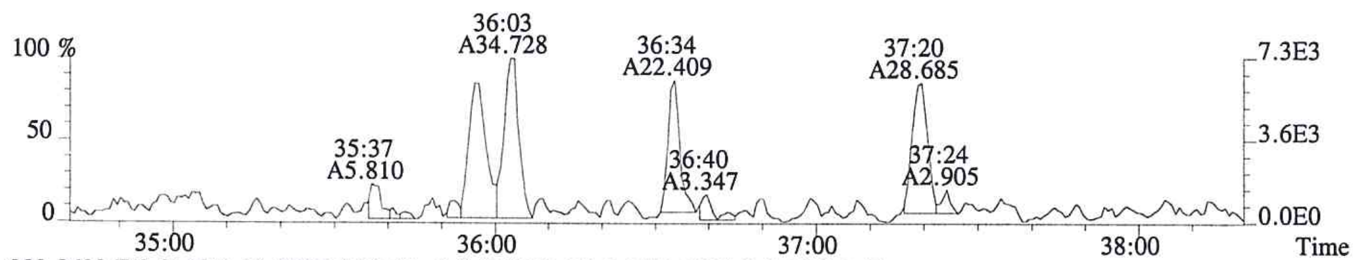
File:P603993 #1-298 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB



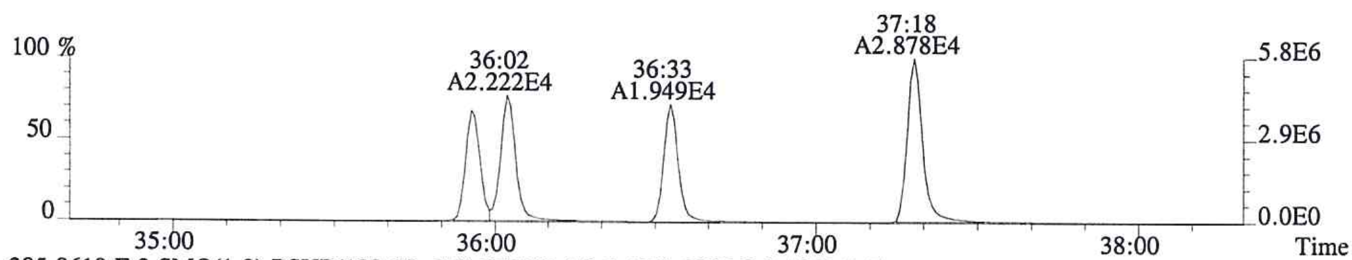
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



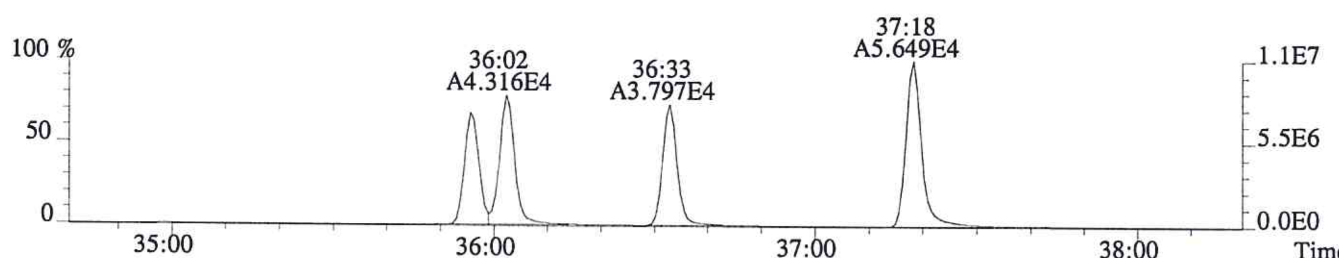
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



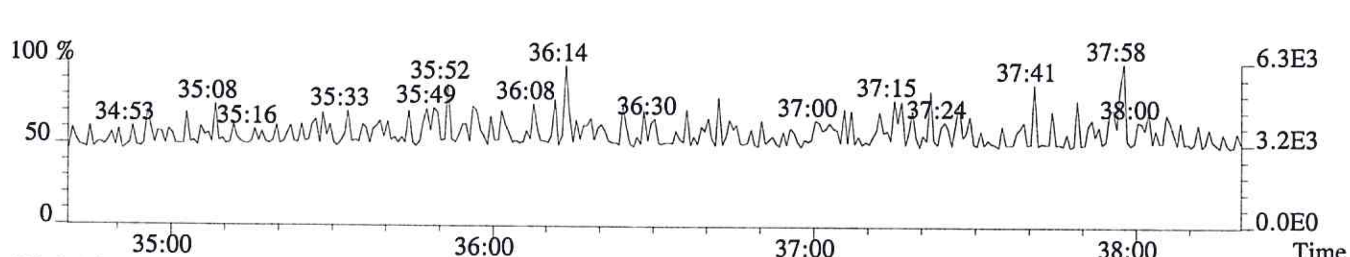
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



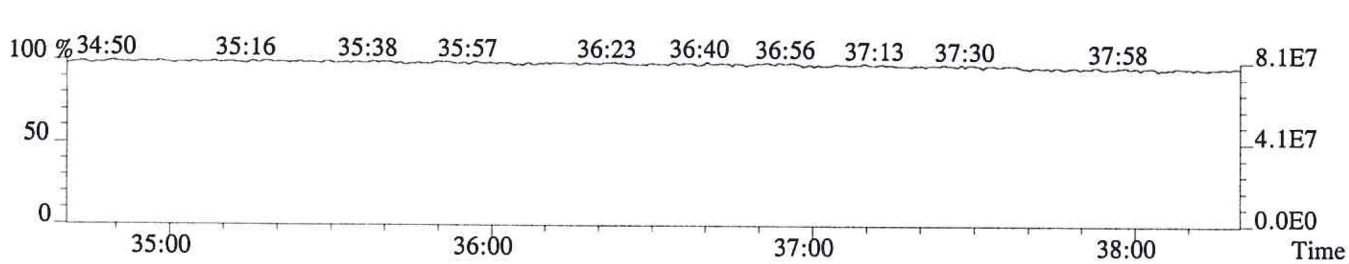
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



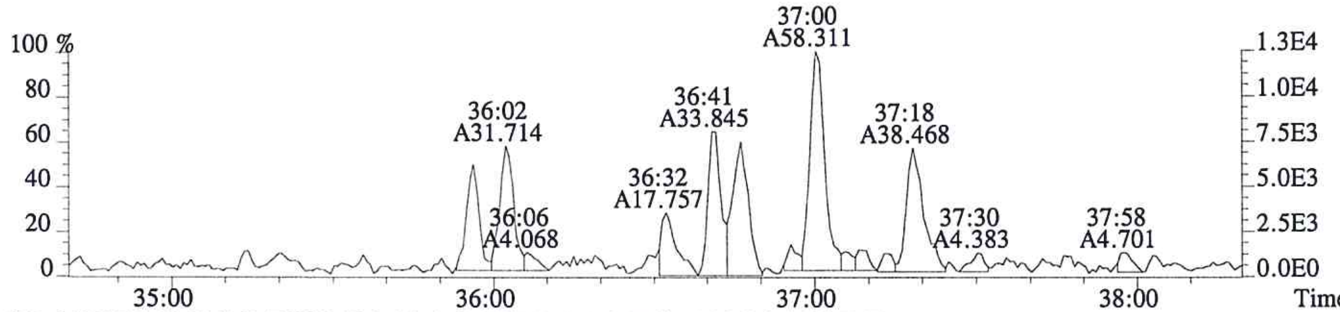
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



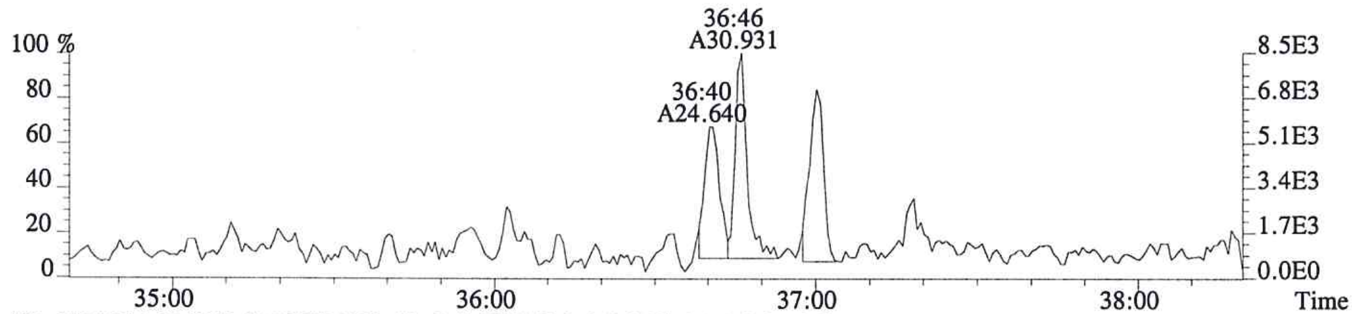
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



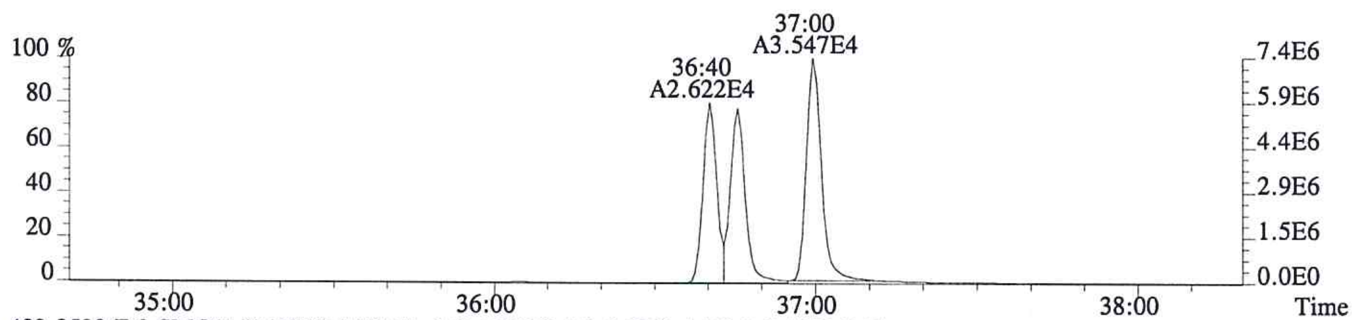
File:P603993 #1-329 Acq:25-JUN-2016 19:48:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



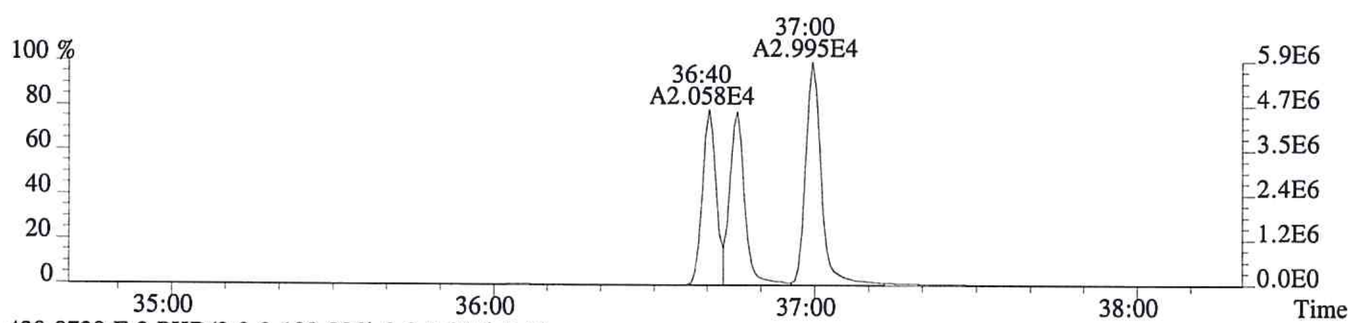
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



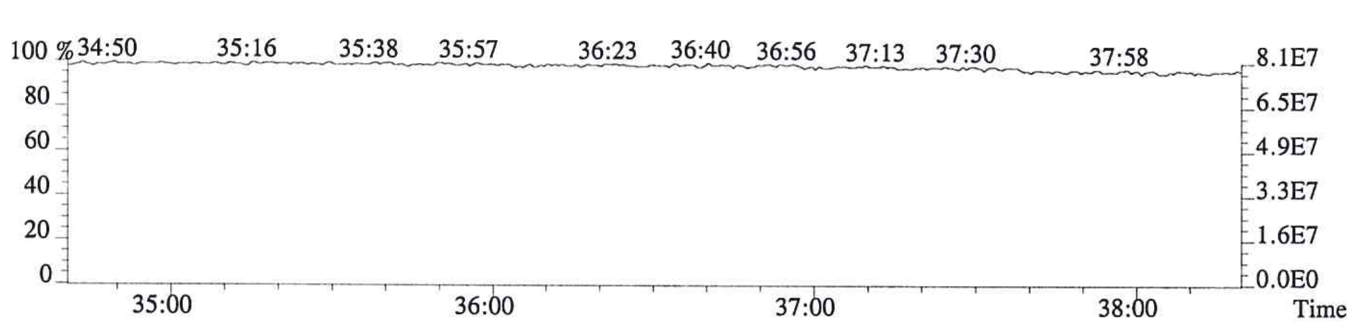
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 Sample ID: EQ1600219-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	2.801e+03	3.660e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.190e+04	1.413e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	2.231e+03	2.891e+03	0.77	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	3.350e+04	4.172e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.040e+04	3.141e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.698e+04	2.983e+04	1.57	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.332e+04	6.463e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	2.534e+04	3.171e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	2.878e+04	3.661e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.503e+04	2.861e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.948e+01				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #7 Filename P604002 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:09:23
Processed: 1-JUL-16 15:35:42 LAB. ID: EQ1600219-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.03e+05	7.96e+02	6.3e+02	6.62e+05	2.36e+03	2.8e+02
3	2,3,4,7,8-PeCDF	4.38e+06	2.79e+03	1.6e+03	2.85e+06	2.28e+03	1.2e+03
11	2,3,7,8-TCDD	4.39e+05	1.02e+03	4.3e+02	5.62e+05	1.12e+03	5.0e+02
18	13C-2,3,7,8-TCDF	6.10e+06	3.89e+03	1.6e+03	7.65e+06	2.73e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.44e+06	5.98e+03	1.6e+03	5.84e+06	6.68e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	9.26e+06	5.98e+03	1.5e+03	5.88e+06	6.68e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.74e+06	7.64e+02	8.8e+03	1.29e+07	1.90e+03	6.8e+03
26	13C-1,2,3,4-TCDF	*	3.89e+03	*	*	2.73e+03	*
27	13C-2,3,7,8-TCDD	4.84e+06	7.32e+03	6.6e+02	6.09e+06	2.92e+03	2.1e+03
33	13C-1,2,3,4-TCDD	5.37e+06	7.32e+03	7.3e+02	6.86e+06	2.92e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.54e+06	1.57e+03	4.8e+03	5.95e+06	1.14e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	1.40e+04	1.43e+03	9.8e+00			

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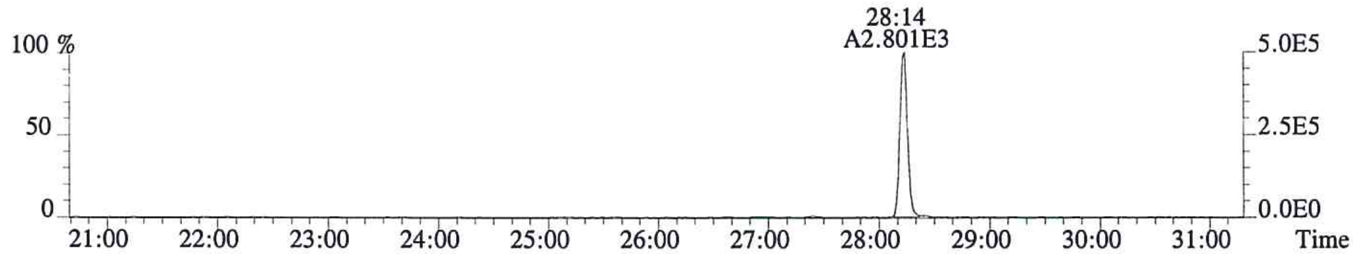
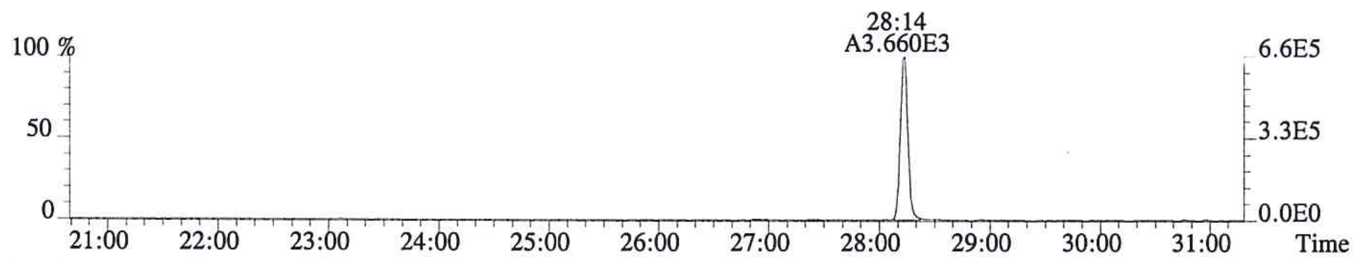
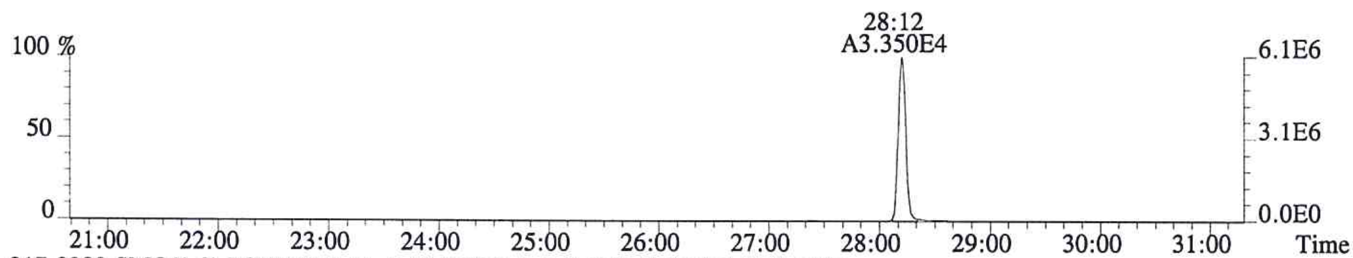
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



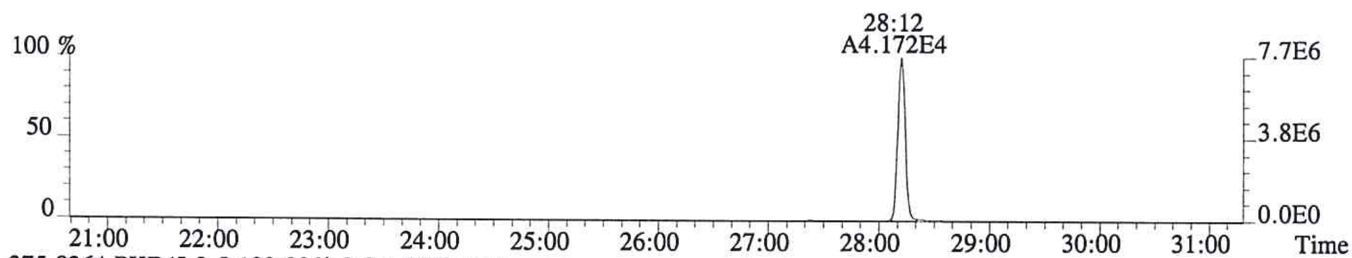
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



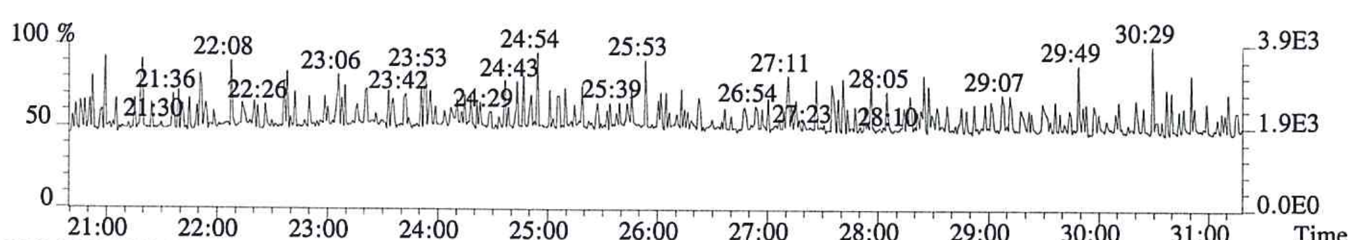
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3892.0,1.00%,F,T)



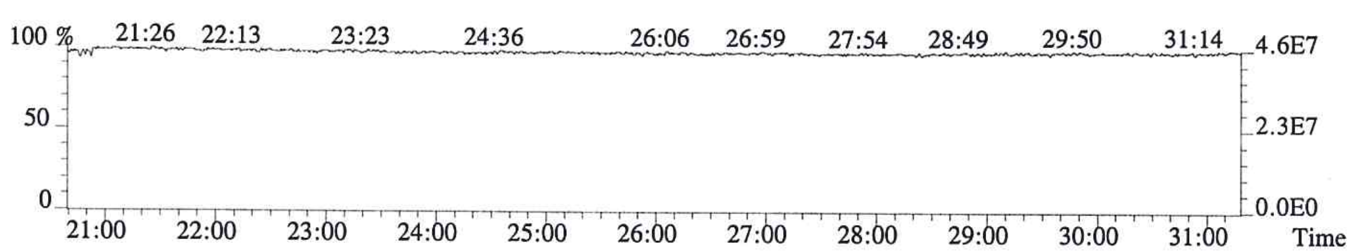
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



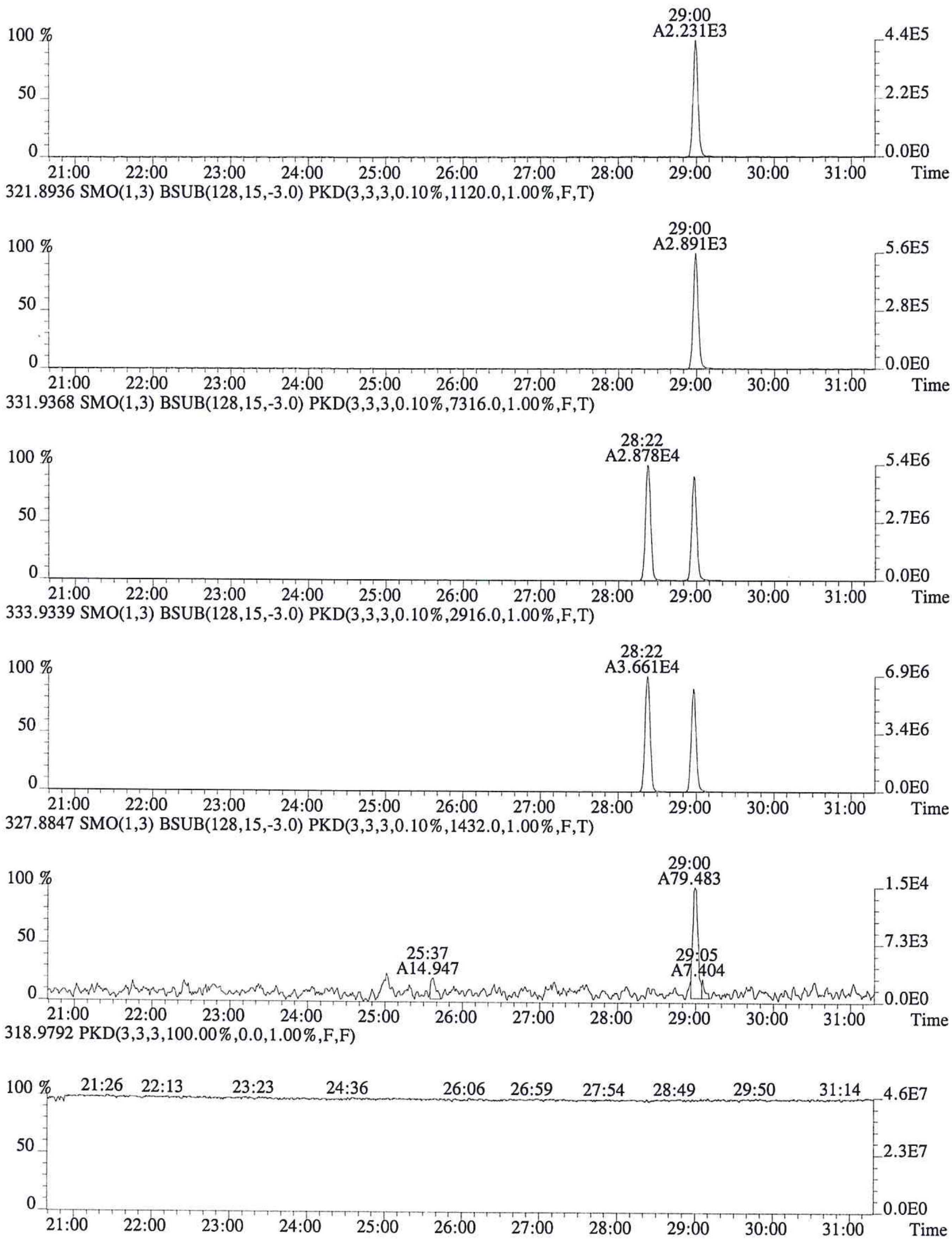
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



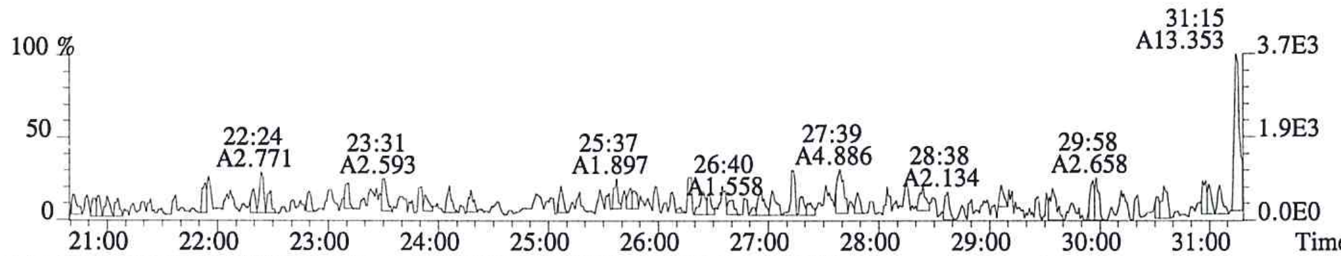
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



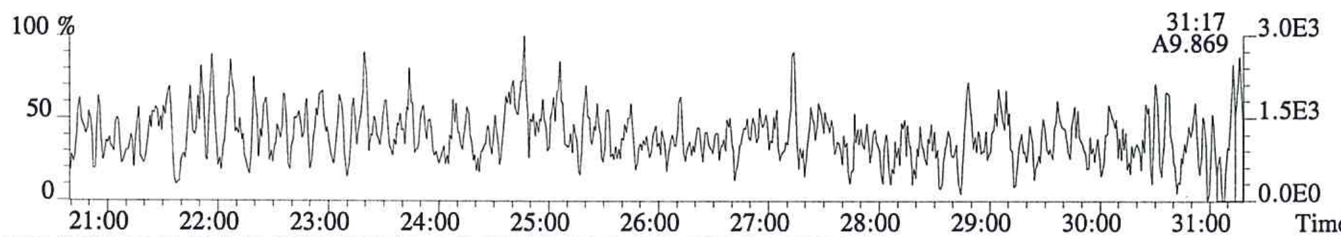
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



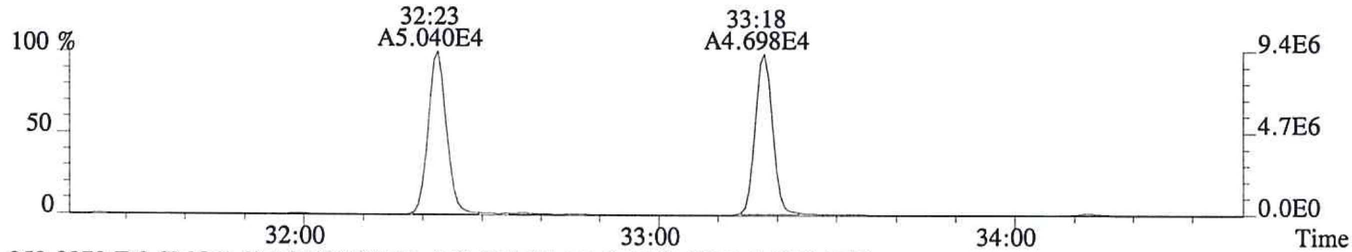
File:P604002 #1-756 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



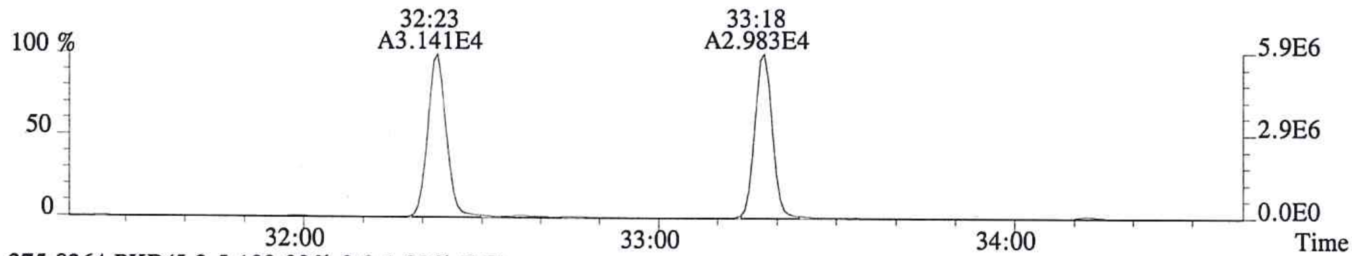
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



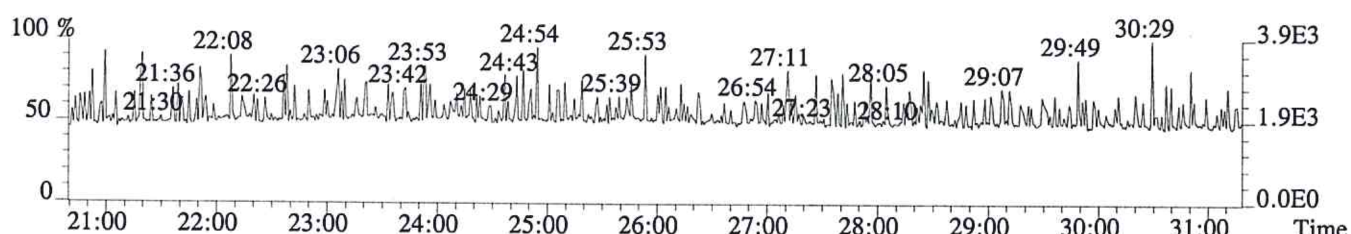
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



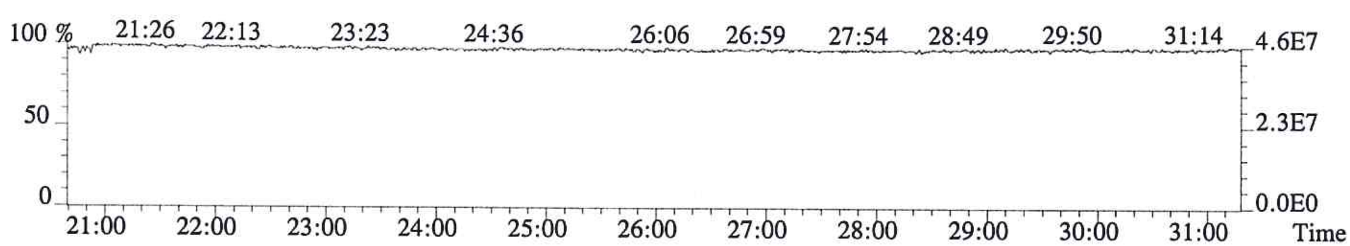
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



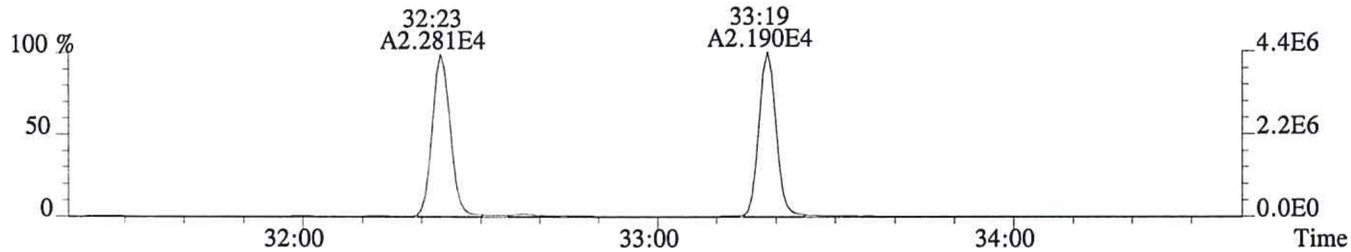
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



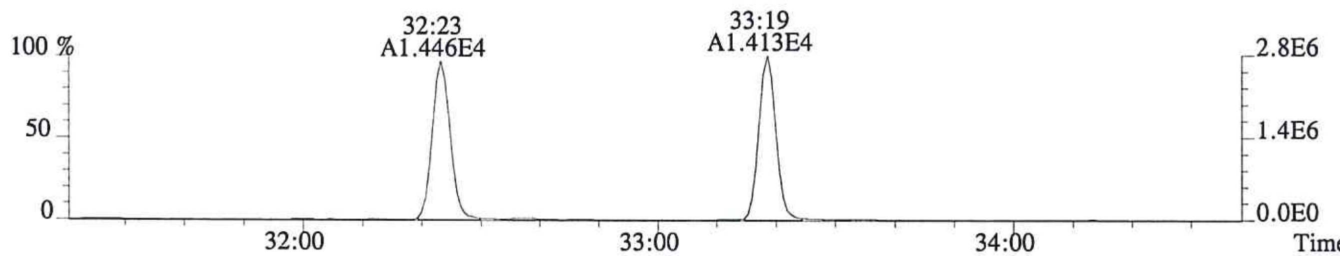
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



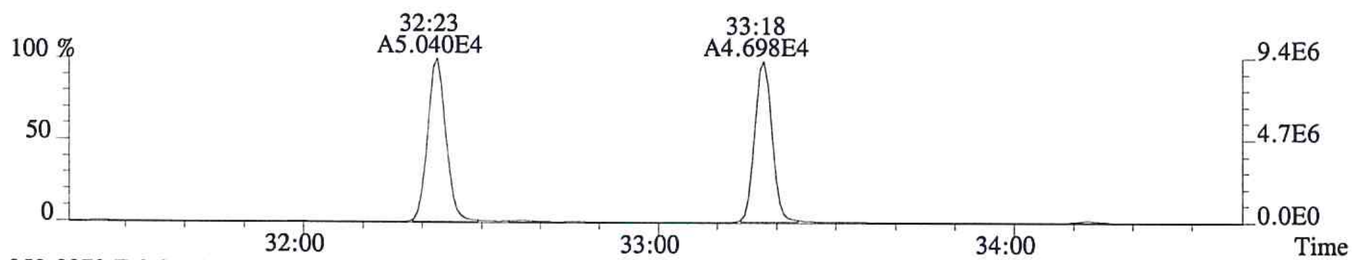
File:P604002 #1-298 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2792.0,1.00%,F,T)



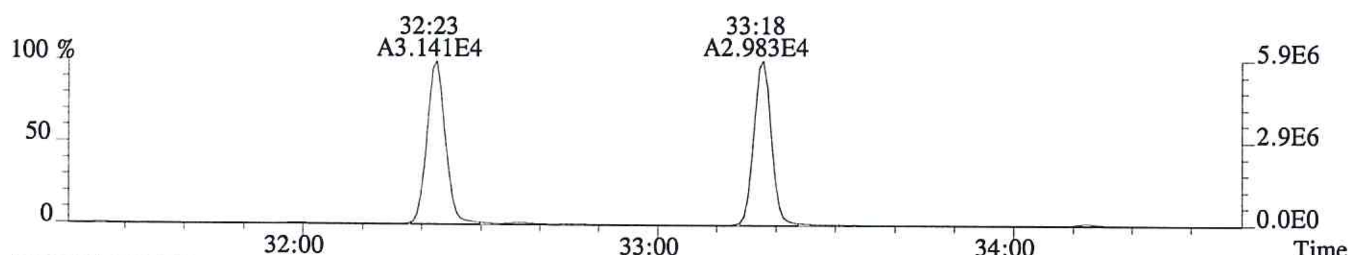
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



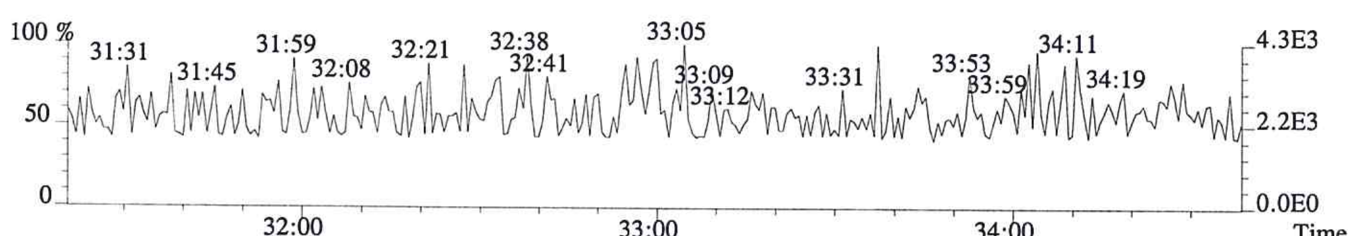
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



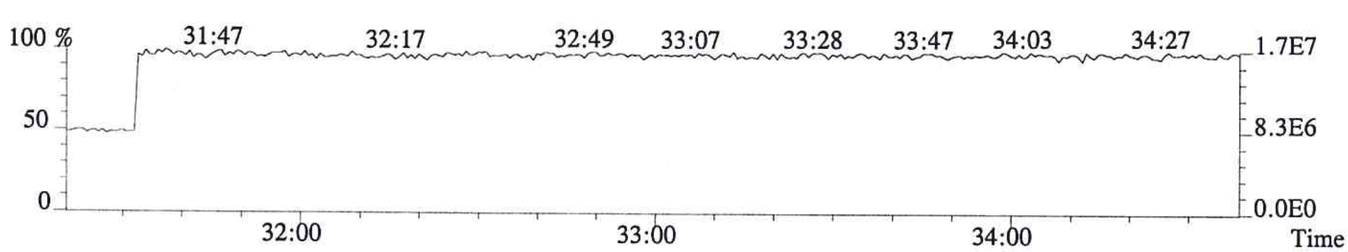
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



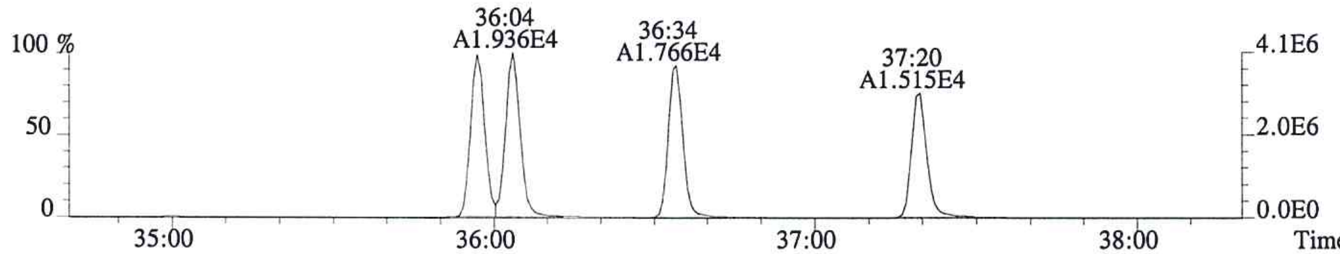
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



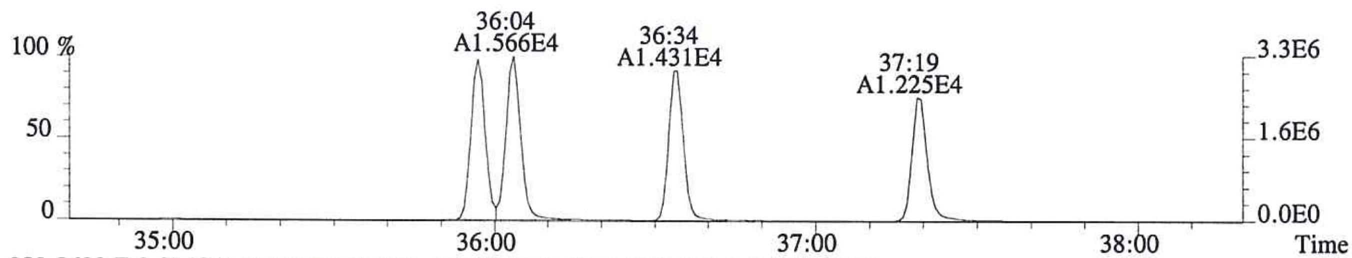
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



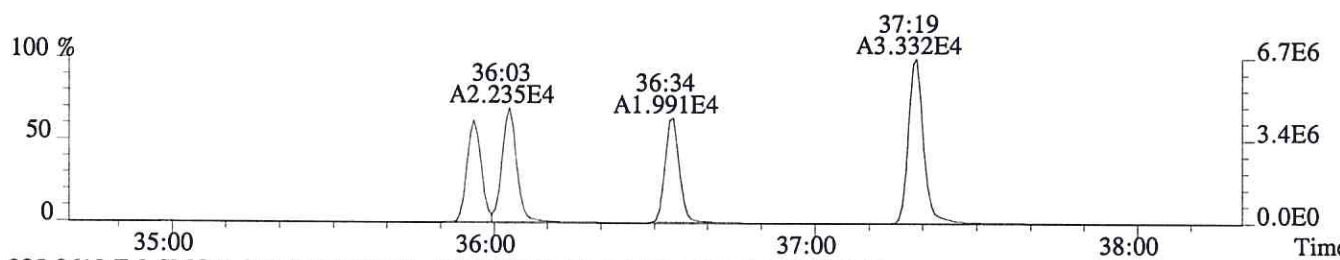
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



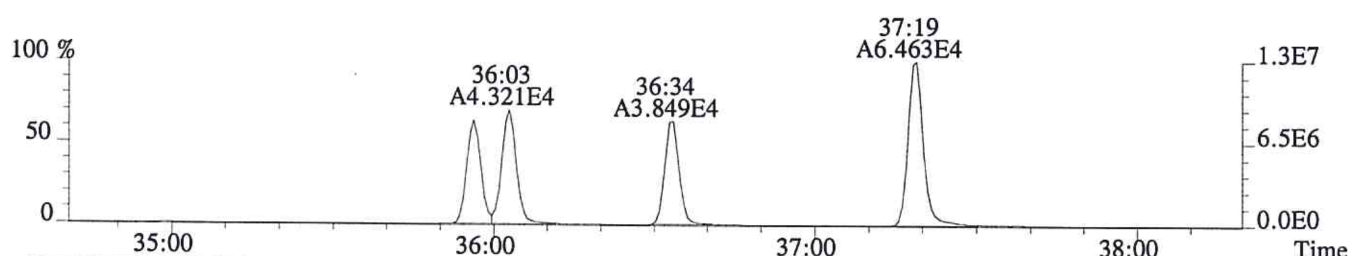
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



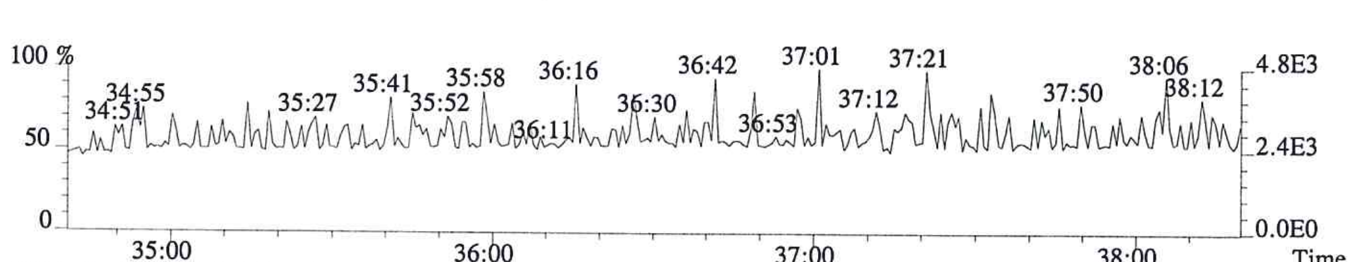
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



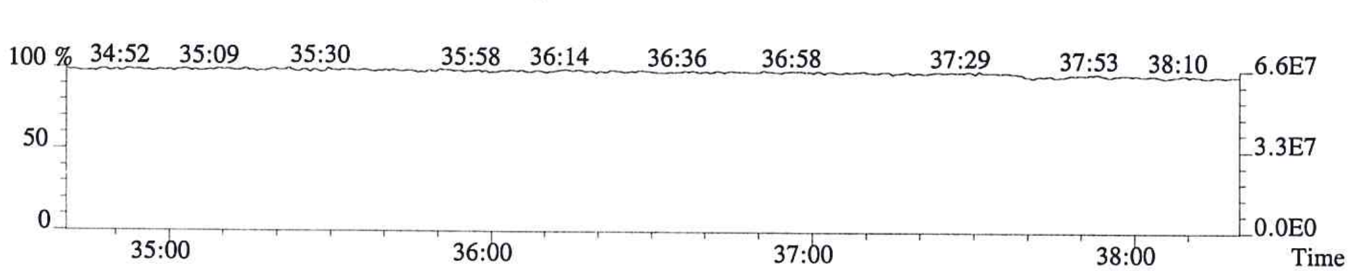
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



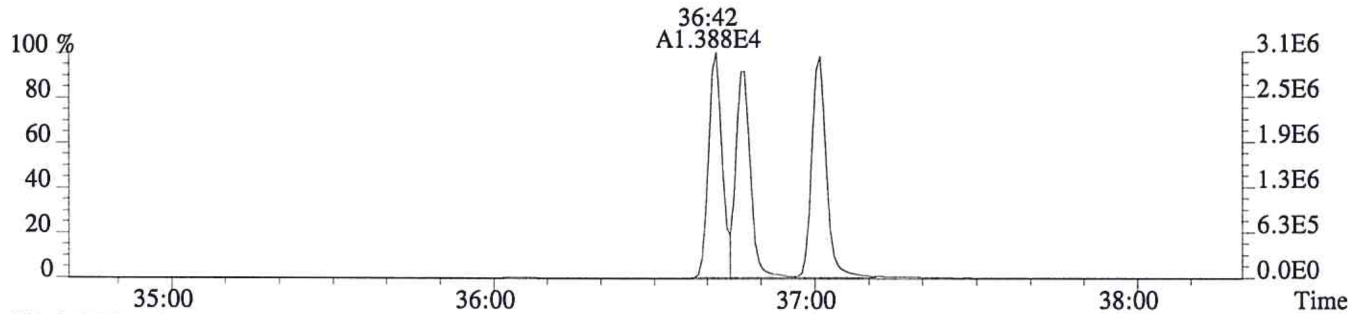
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



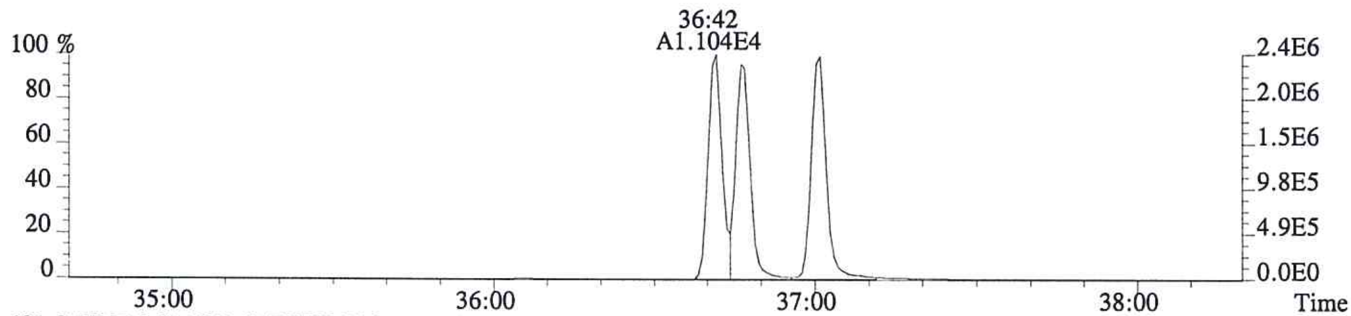
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



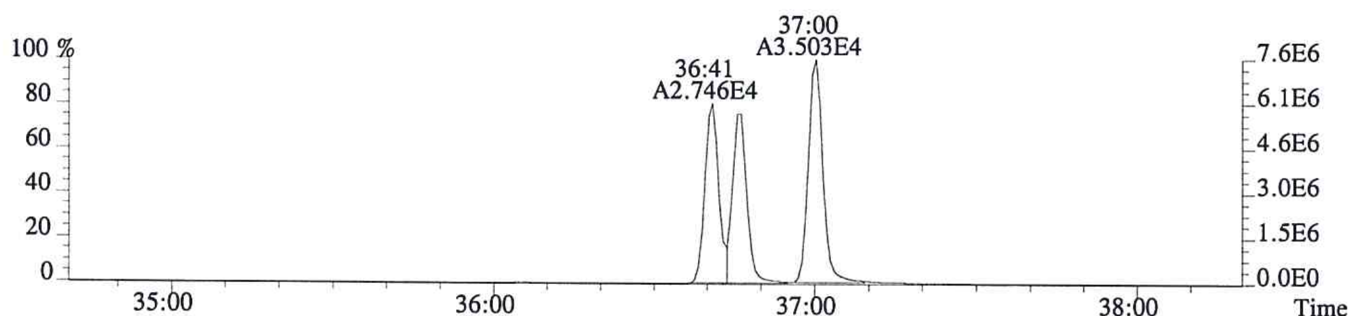
File:P604002 #1-329 Acq:26-JUN-2016 03:09:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



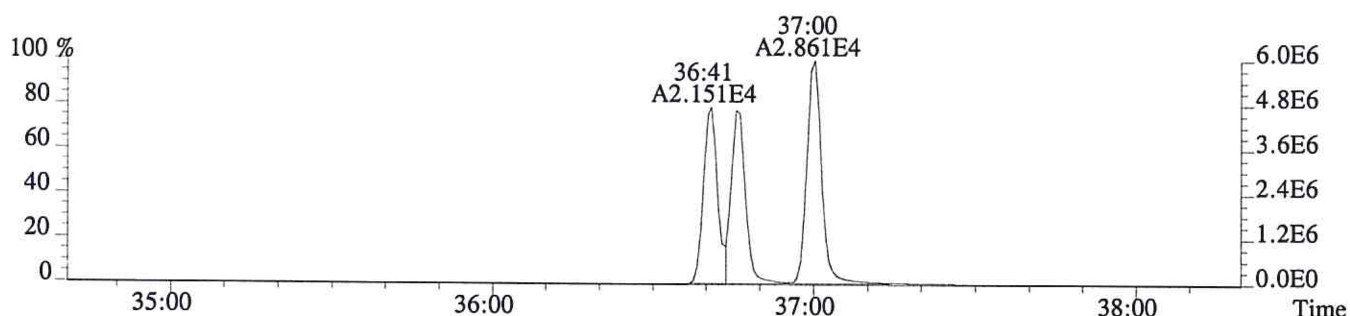
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



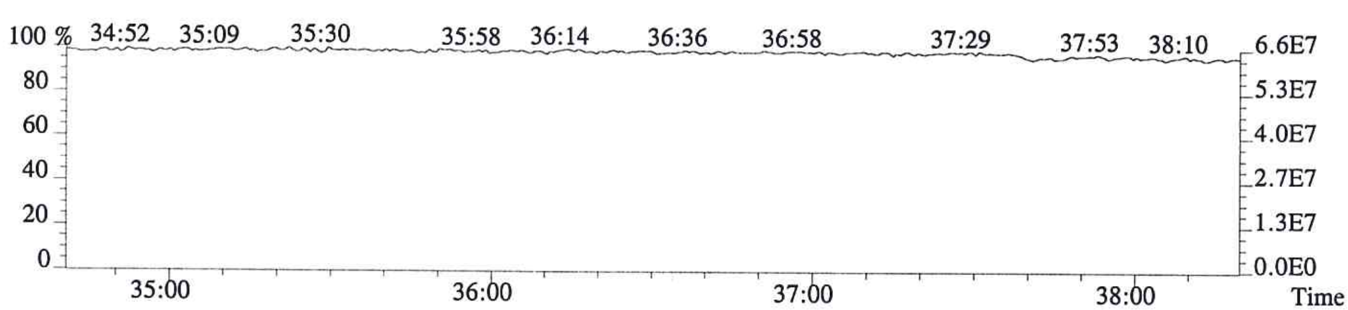
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 Sample ID: EQ1600219-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	2.475e+02	3.295e+02	0.75	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	2.105e+03	1.300e+03	1.62	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.781e+02	2.430e+02	0.73	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	2.865e+03	3.441e+03	0.83	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	4.842e+03	3.037e+03	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	4.611e+03	2.925e+03	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.533e+03	6.873e+03	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.324
27	IS	13C-2,3,7,8-TCDD	28:59	2.121e+03	2.640e+03	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	2.977e+03	3.759e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.340e+03	3.498e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	NotFnd	*				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #8 Filename P604003 Samp: 1 Inj: 1 Acquired: 26-JUN-16 03:58:24
Processed: 1-JUL-16 15:35:43 LAB. ID: EQ1600219-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.11e+04	9.20e+02	4.5e+01	5.51e+04	1.65e+03	3.3e+01
3	2,3,4,7,8-PeCDF	3.91e+05	9.84e+02	4.0e+02	2.43e+05	1.37e+03	1.8e+02
11	2,3,7,8-TCDD	3.31e+04	1.12e+03	3.0e+01	4.21e+04	1.22e+03	3.5e+01
18	13C-2,3,7,8-TCDF	4.66e+05	4.36e+03	1.1e+02	5.65e+05	2.14e+03	2.6e+02
19	13C-1,2,3,7,8-PeCDF	8.43e+05	9.84e+02	8.6e+02	5.24e+05	1.04e+03	5.1e+02
20	13C-2,3,4,7,8-PeCDF	8.61e+05	9.84e+02	8.8e+02	5.53e+05	1.04e+03	5.3e+02
24	13C-1,2,3,7,8,9-HxCDF	6.91e+05	6.84e+02	1.0e+03	1.32e+06	1.64e+03	8.1e+02
26	13C-1,2,3,4-TCDF	*	4.36e+03	*	*	2.14e+03	*
27	13C-2,3,7,8-TCDD	3.73e+05	6.87e+03	5.4e+01	4.77e+05	3.12e+03	1.5e+02
33	13C-1,2,3,4-TCDD	5.41e+05	6.87e+03	7.9e+01	6.72e+05	3.12e+03	2.2e+02
34	13C-1,2,3,7,8,9-HxCDD	8.67e+05	1.60e+03	5.4e+02	7.17e+05	1.18e+03	6.1e+02
35	37Cl-2,3,7,8-TCDD	*	1.58e+03	*			

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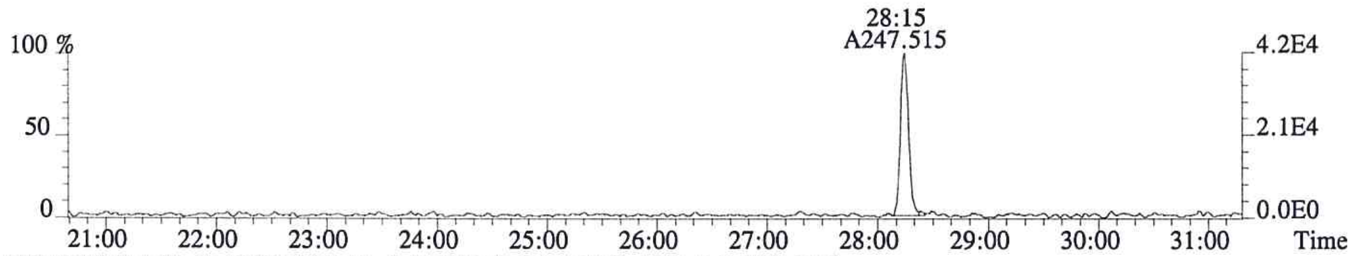
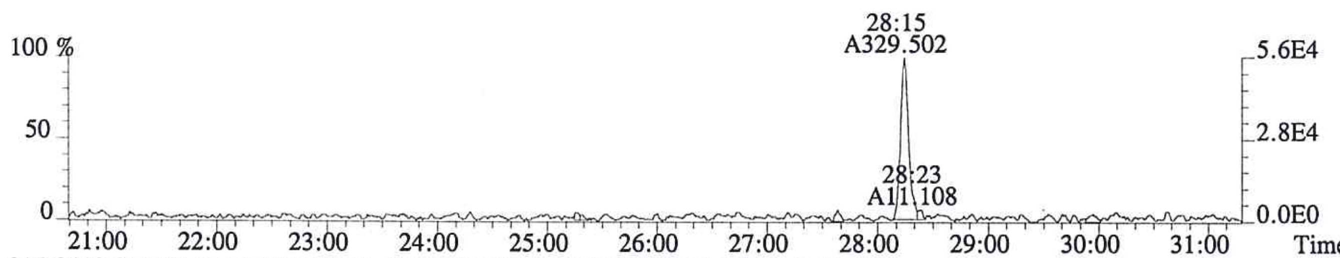
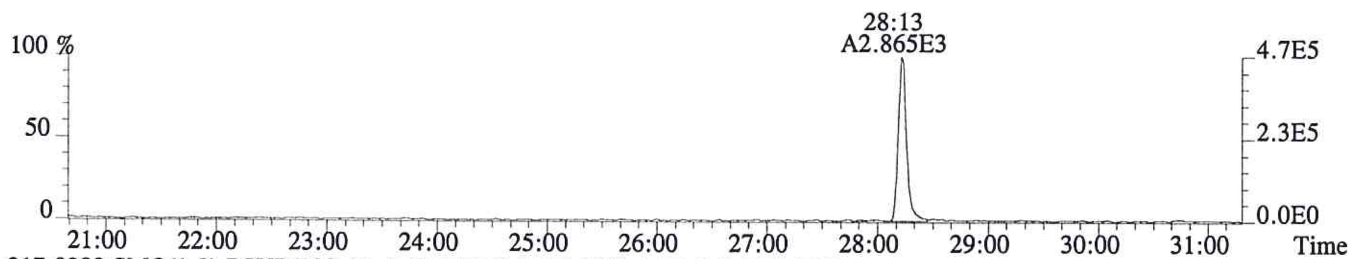
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



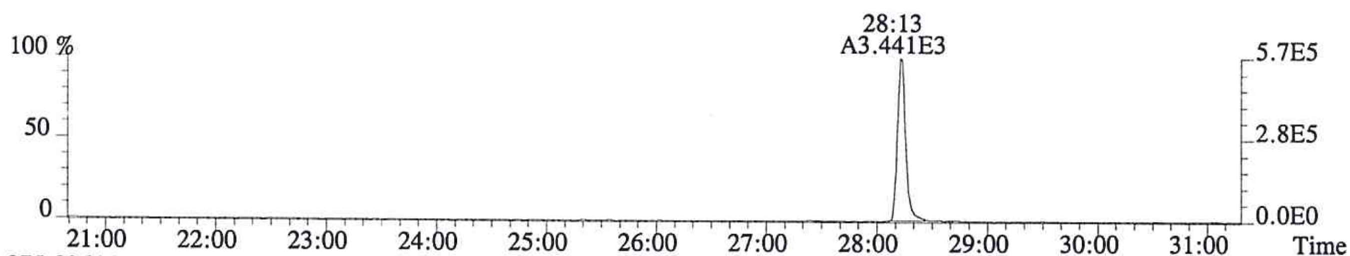
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



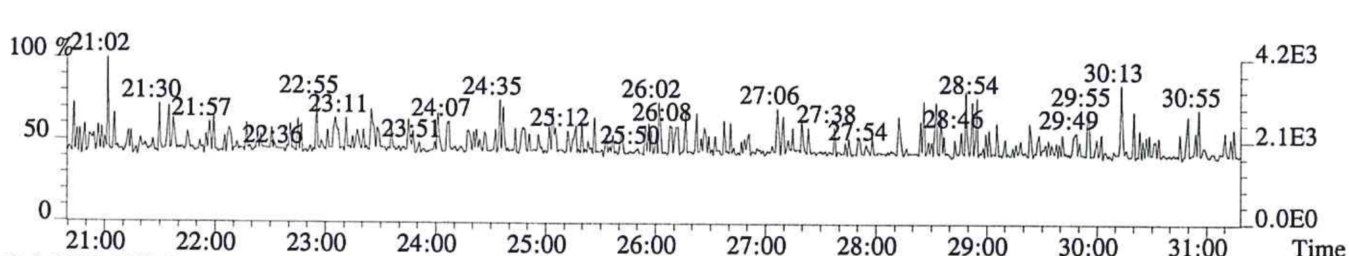
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4356.0,1.00%,F,T)



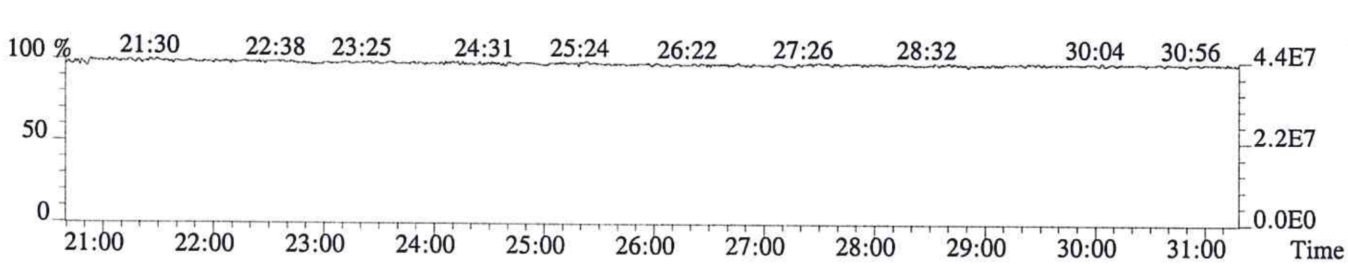
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



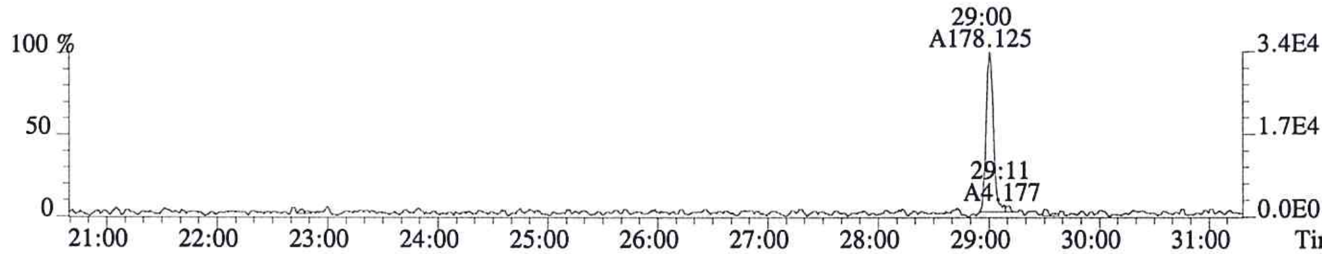
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



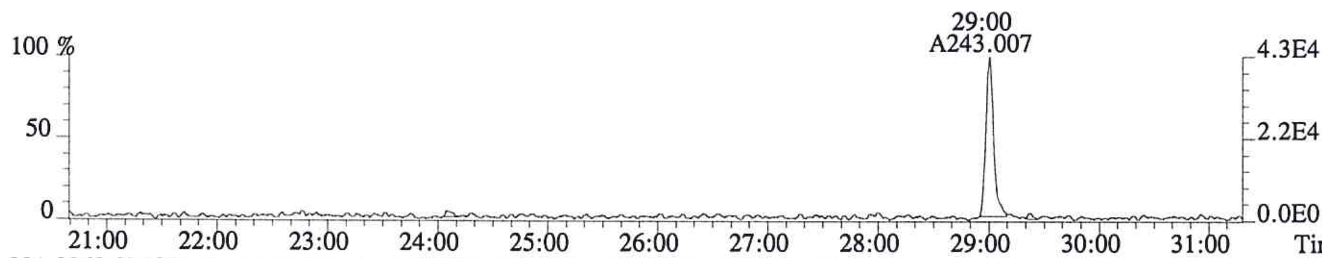
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



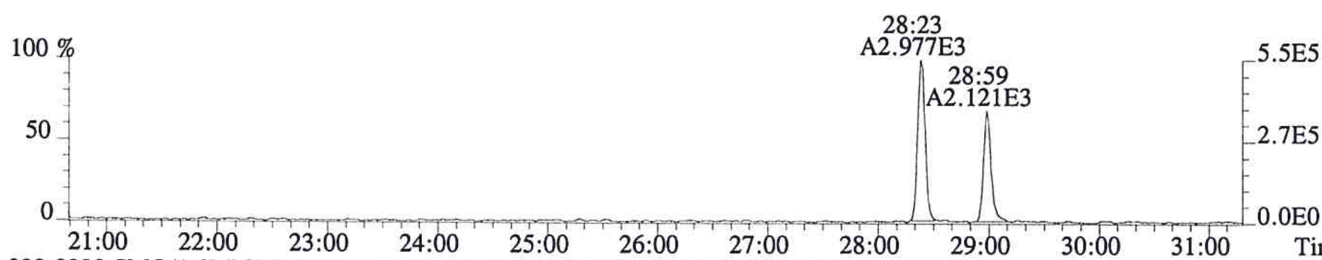
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



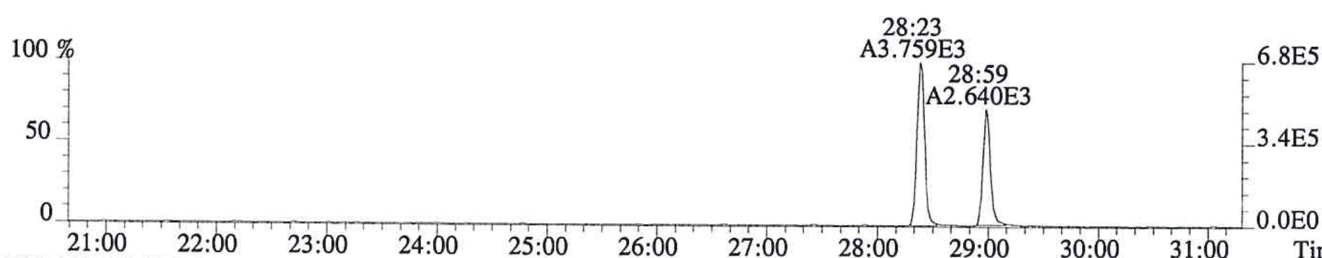
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



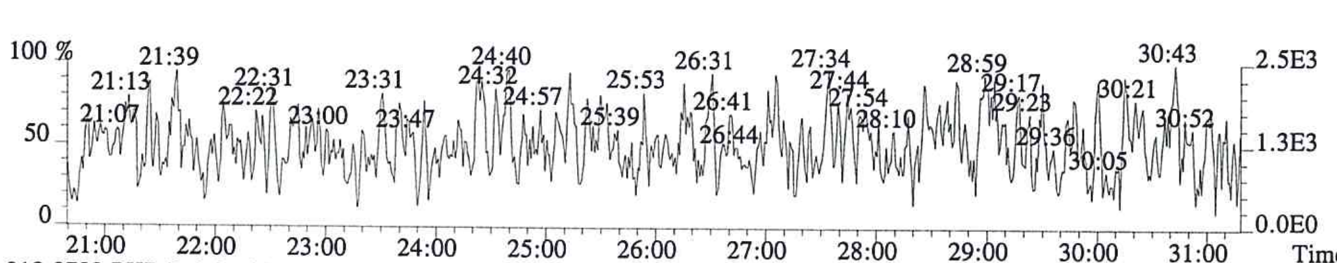
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6868.0,1.00%,F,T)



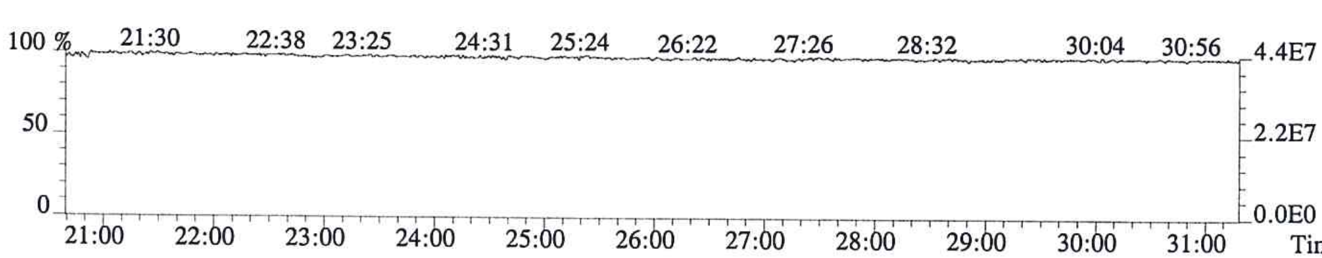
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



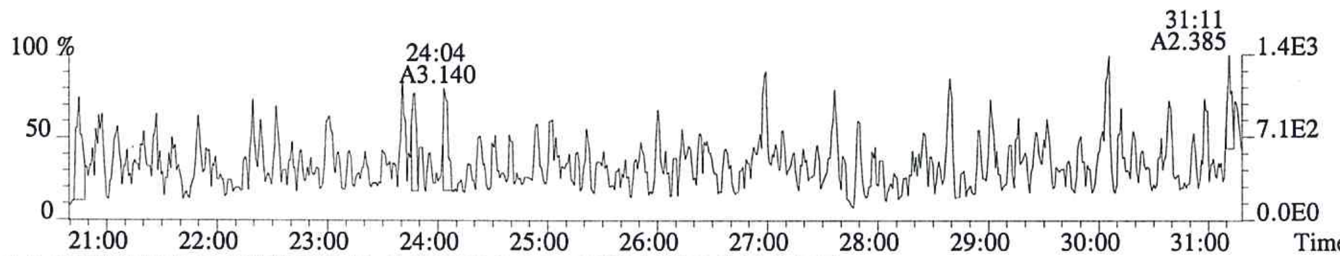
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



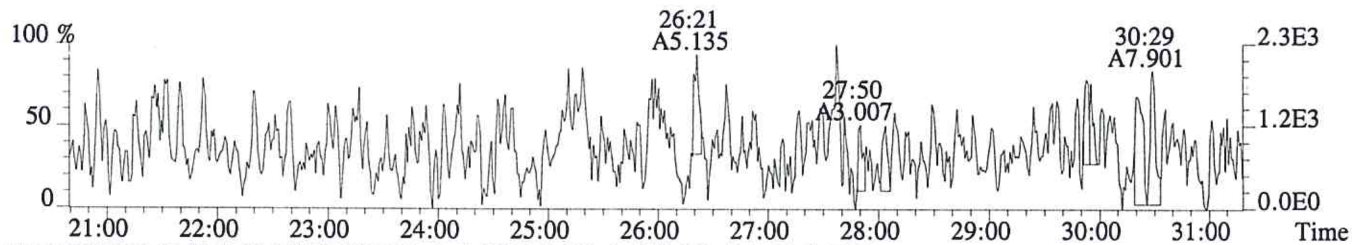
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



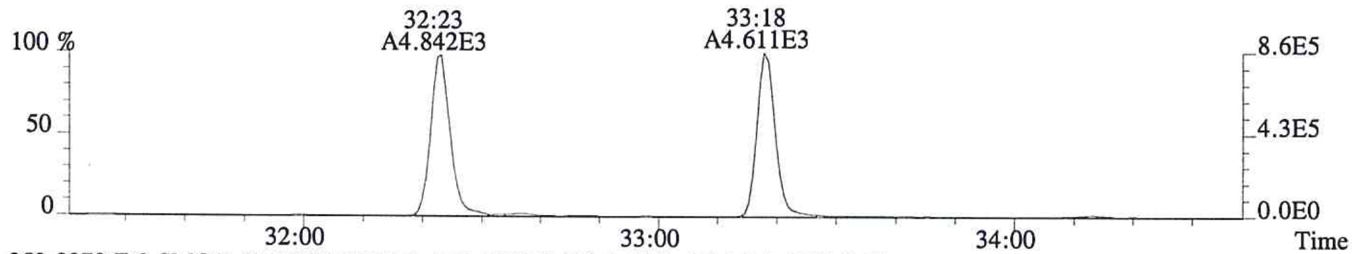
File:P604003 #1-756 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



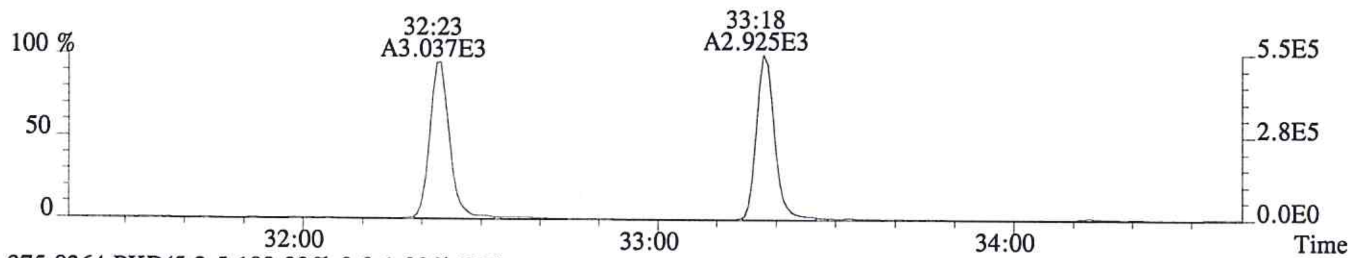
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



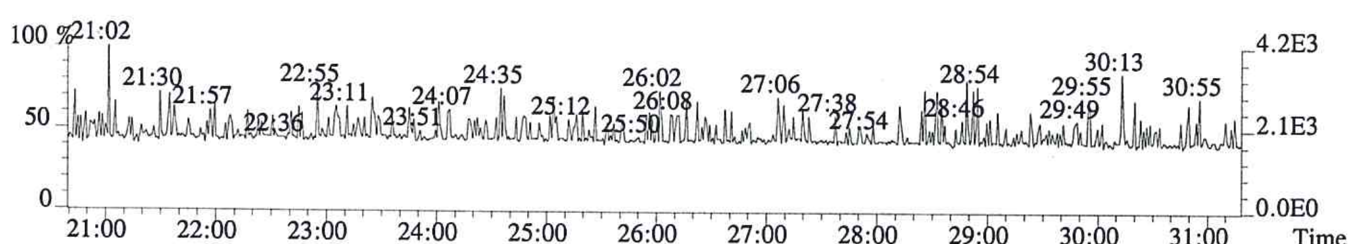
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



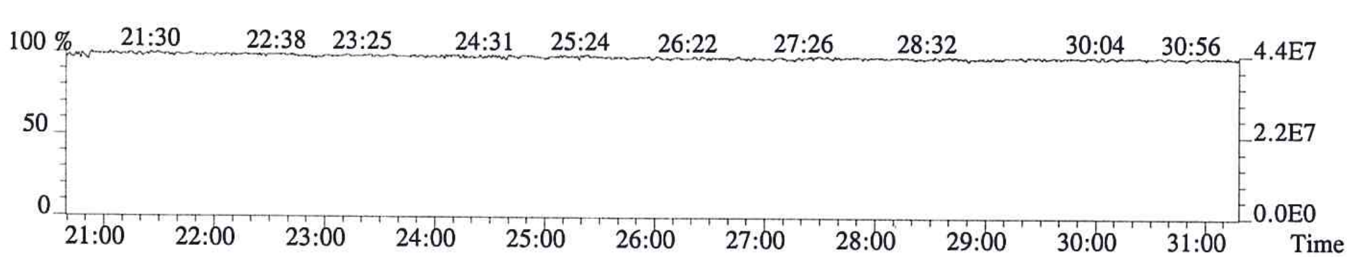
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



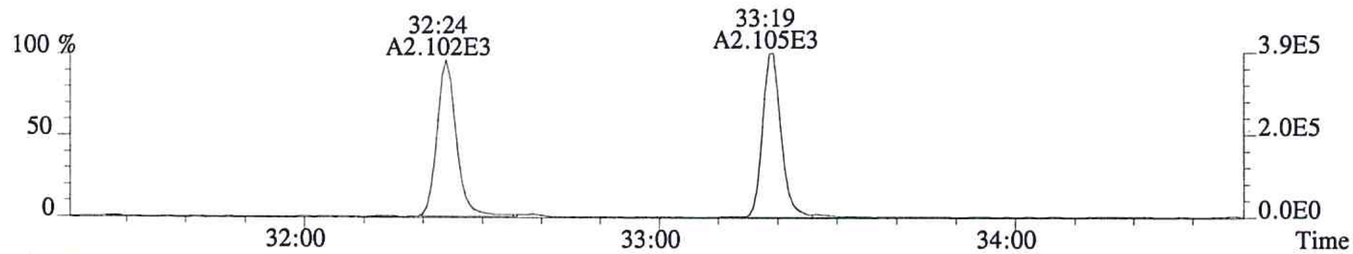
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



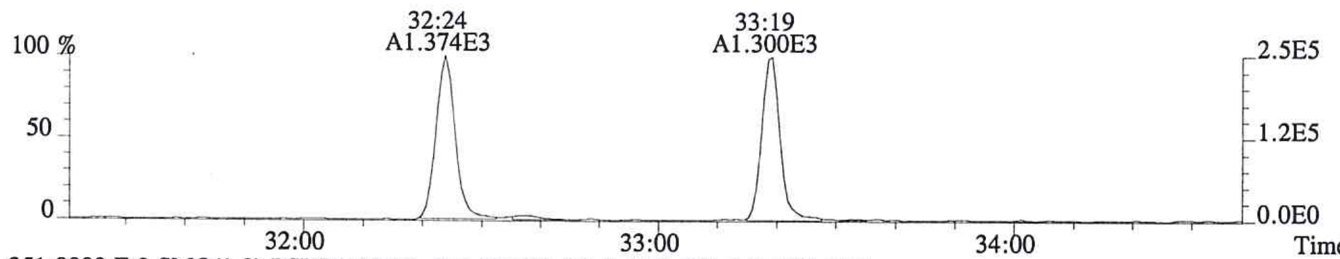
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



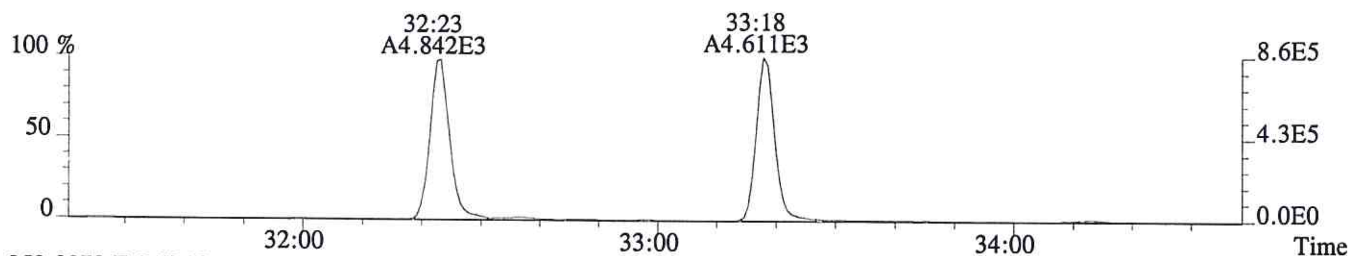
File:P604003 #1-298 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



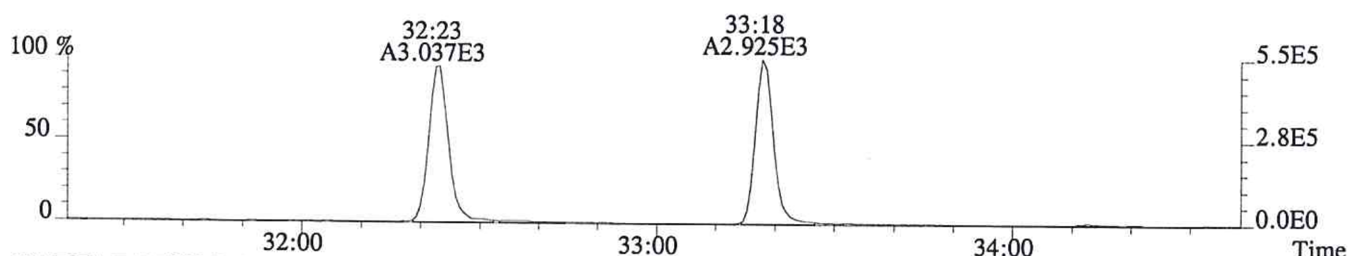
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



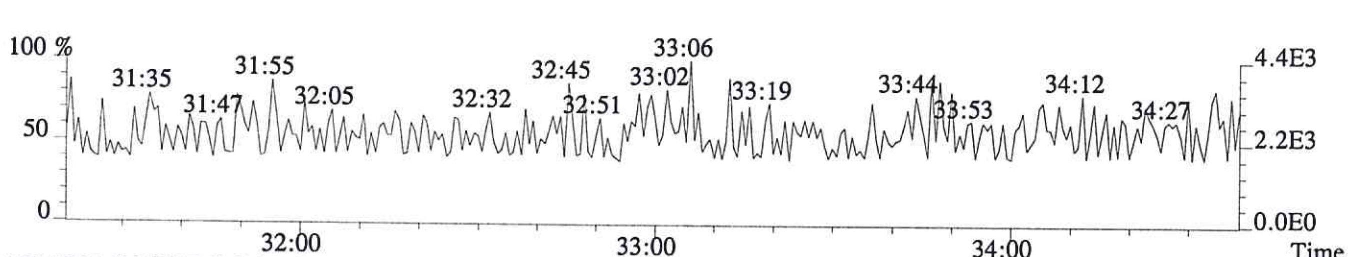
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



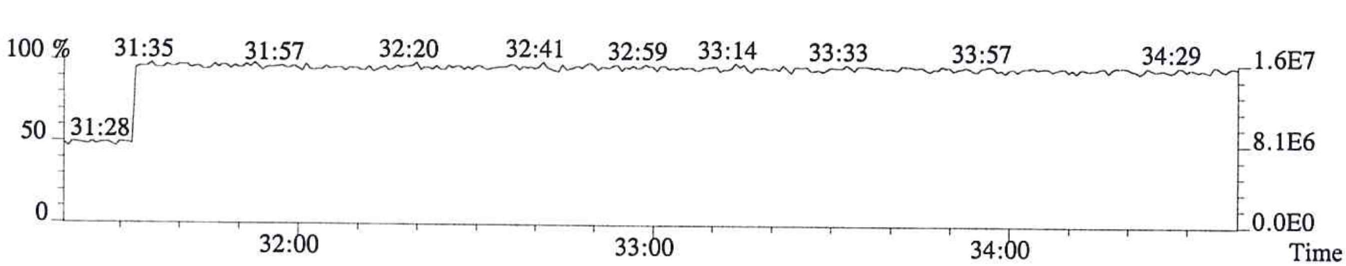
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



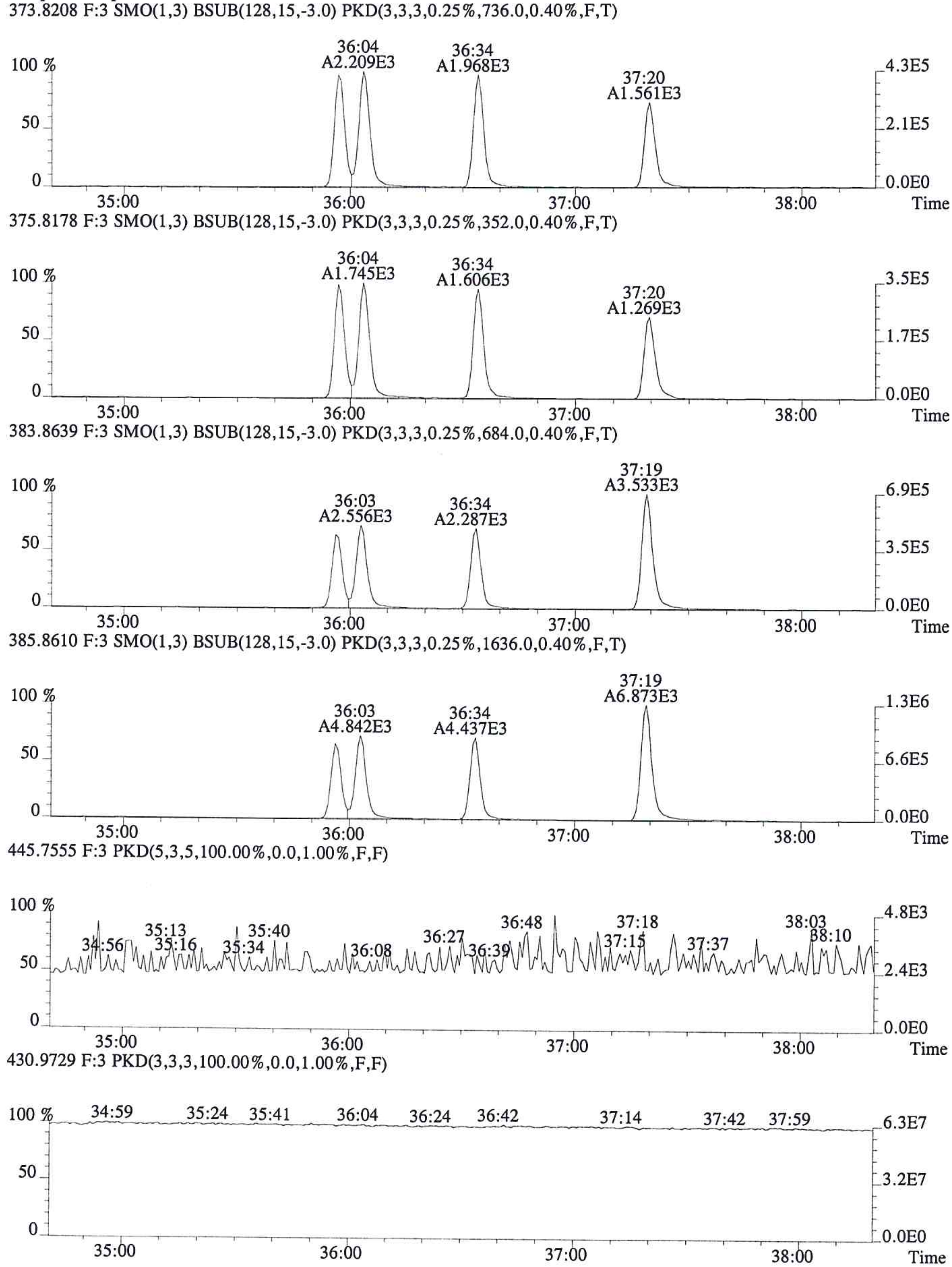
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



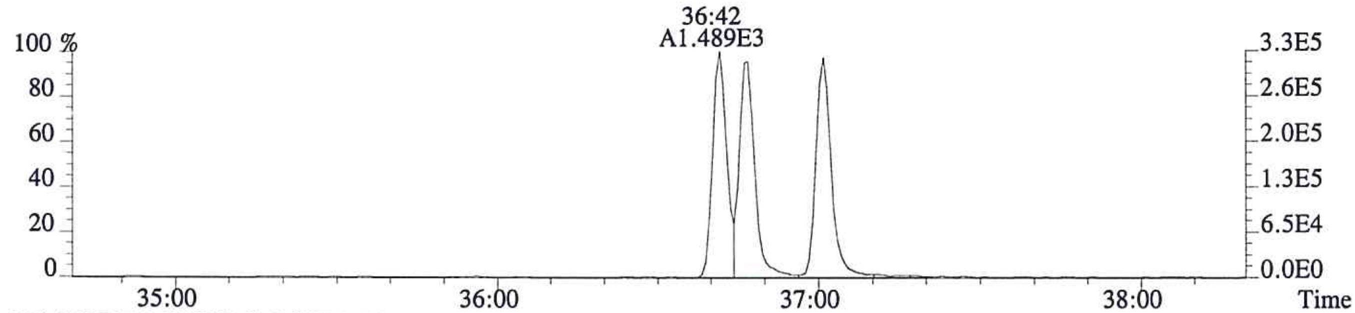
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



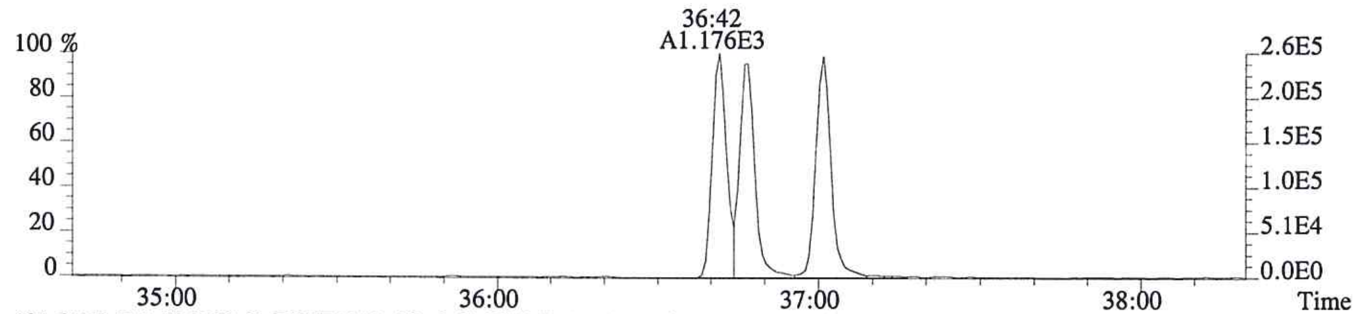
File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS



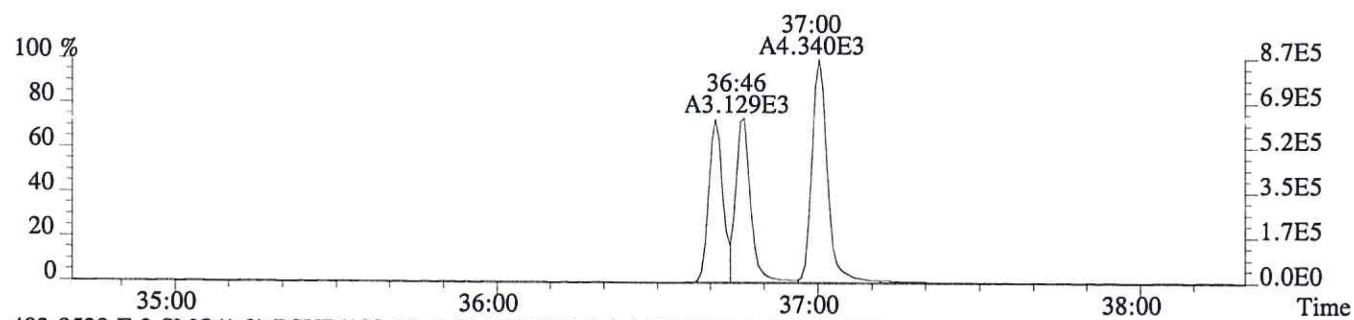
File:P604003 #1-329 Acq:26-JUN-2016 03:58:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



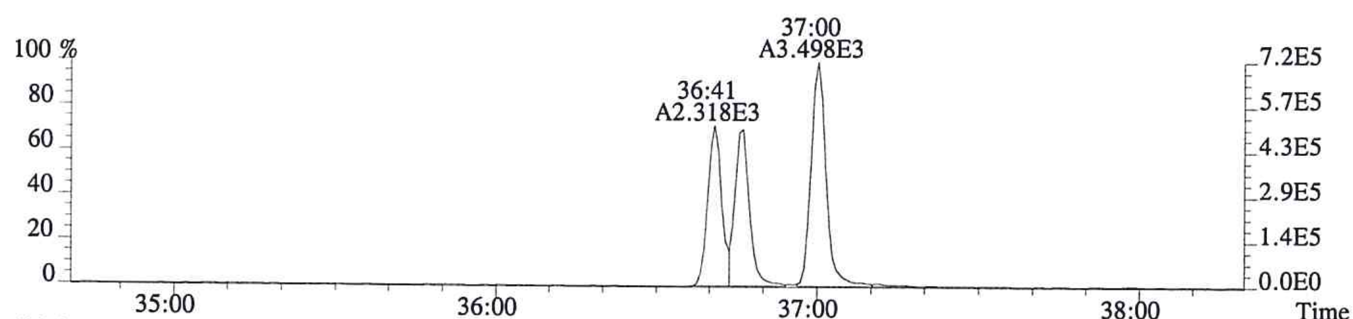
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



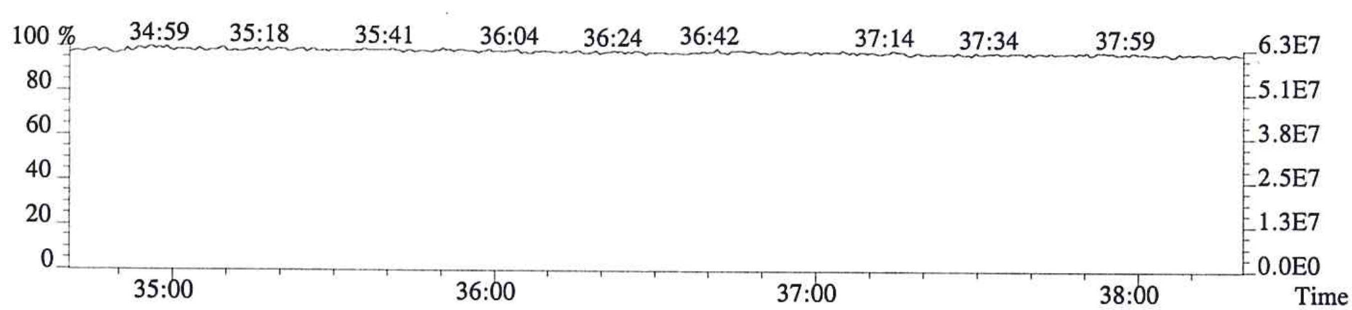
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #7 Filename P604007 Samp: 1 Inj: 1 Acquired: 26-JUN-16 11:18:23
Processed: 7-JUL-16 08:59:10 Sample ID: EQ1600220-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.957
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.329e+04	1.716e+04	0.77	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	2.047e+04	1.287e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.345e+04	2.657e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.038e+04	1.293e+04	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	4.021e+04	5.113e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.228e+04	3.388e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	6.083e+01				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #7 Filename P604007 Samp: 1 Inj: 1 Acquired: 26-JUN-16 11:18:23
Processed: 7-JUL-16 08:59:10 LAB. ID: EQ1600220-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.06e+03	*	*	2.13e+03	*
3	2,3,4,7,8-PeCDF	*	8.60e+02	*	*	1.76e+03	*
11	2,3,7,8-TCDD	*	1.41e+03	*	*	1.39e+03	*
18	13C-2,3,7,8-TCDF	2.40e+06	5.04e+03	4.8e+02	3.12e+06	2.59e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	3.77e+06	6.60e+02	5.7e+03	2.36e+06	3.50e+03	6.8e+02
20	13C-2,3,4,7,8-PeCDF	*	6.60e+02	*	*	3.50e+03	*
24	13C-1,2,3,7,8,9-HxCDF	2.64e+06	9.60e+02	2.8e+03	5.21e+06	1.50e+03	3.5e+03
26	13C-1,2,3,4-TCDF	*	5.04e+03	*	*	2.59e+03	*
27	13C-2,3,7,8-TCDD	1.94e+06	5.98e+03	3.2e+02	2.47e+06	4.64e+03	5.3e+02
33	13C-1,2,3,4-TCDD	7.64e+06	5.98e+03	1.3e+03	9.71e+06	4.64e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	8.63e+06	4.02e+03	2.1e+03	6.98e+06	2.29e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	1.20e+04	1.36e+03	8.8e+00			

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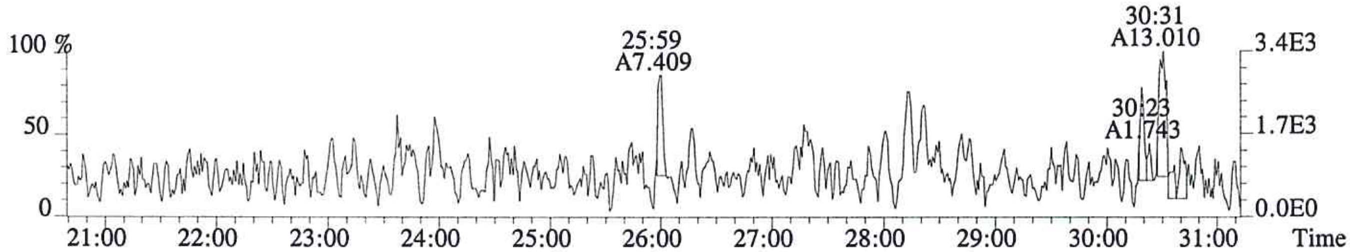
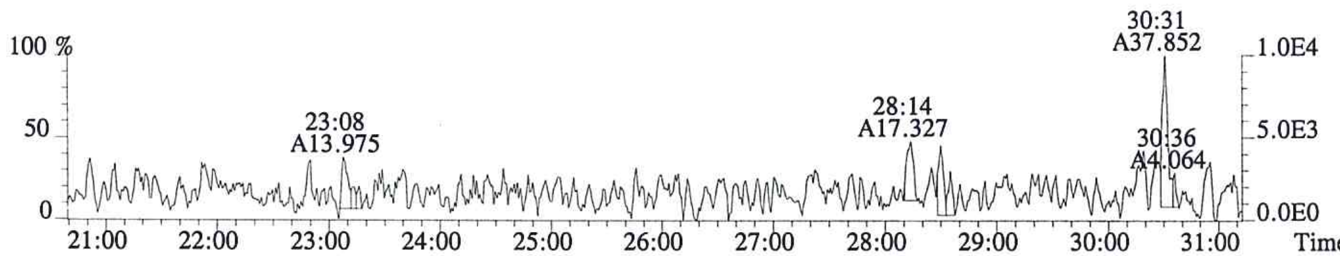
www.alsglobal.com

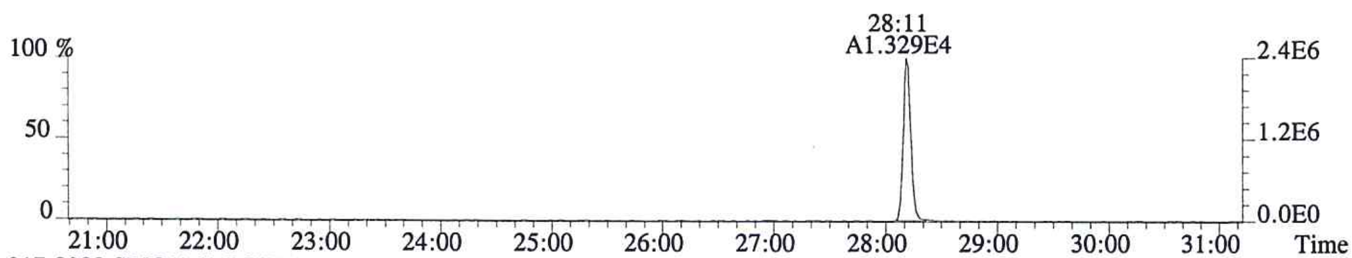
File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



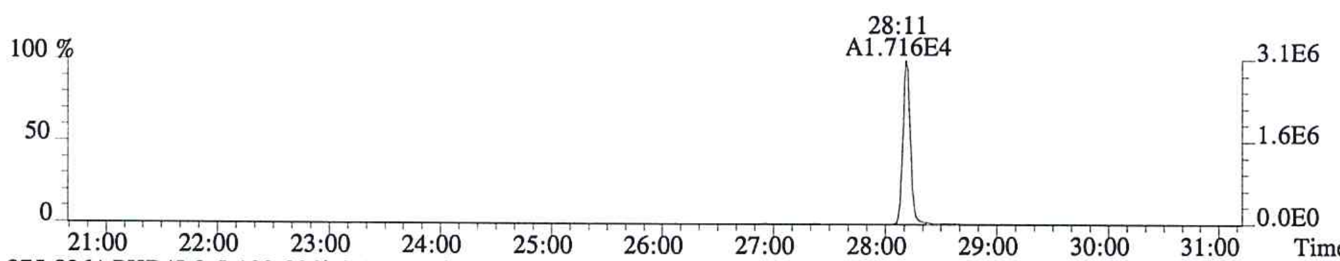
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



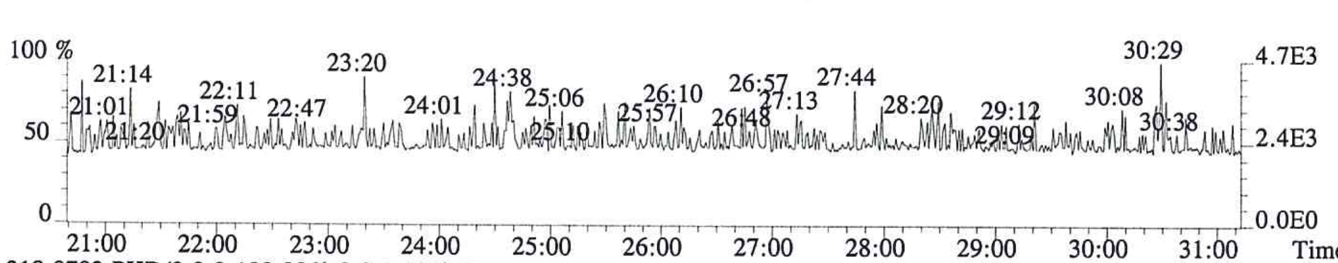
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5044.0,1.00%,F,T)



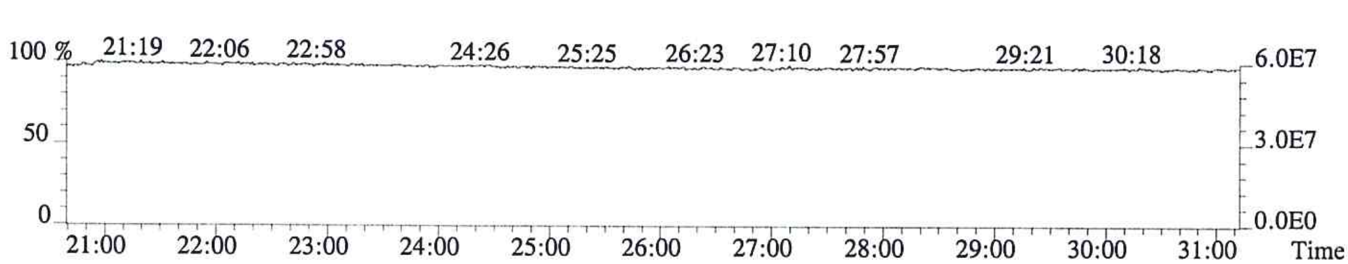
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



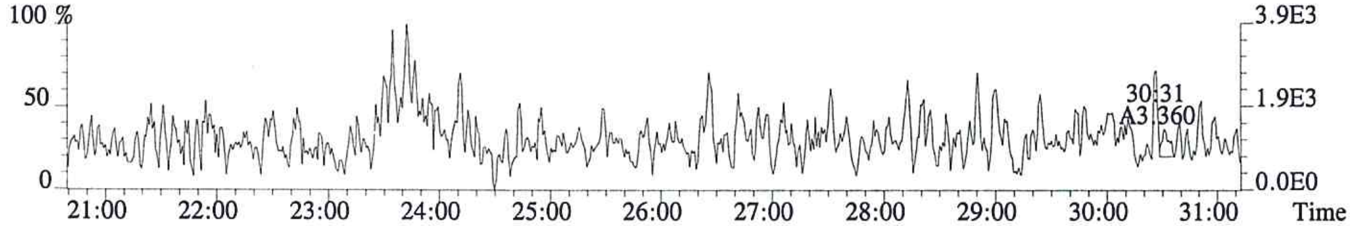
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



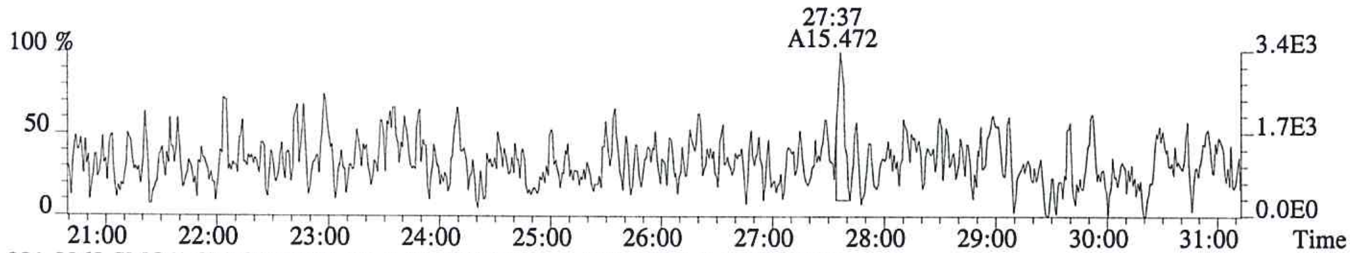
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



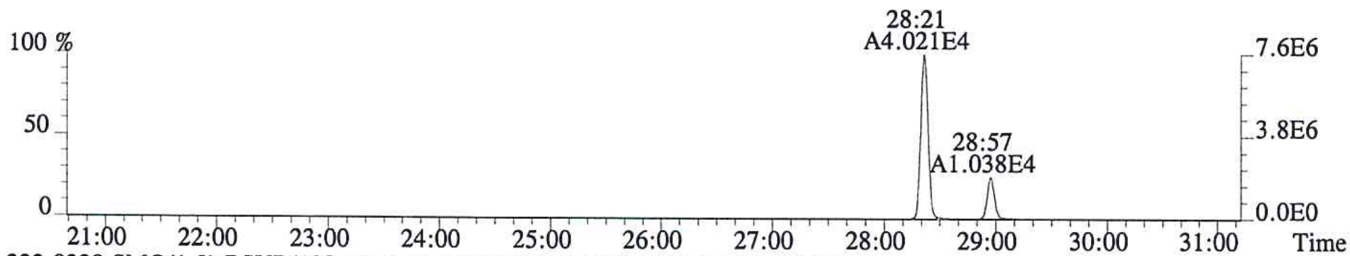
File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



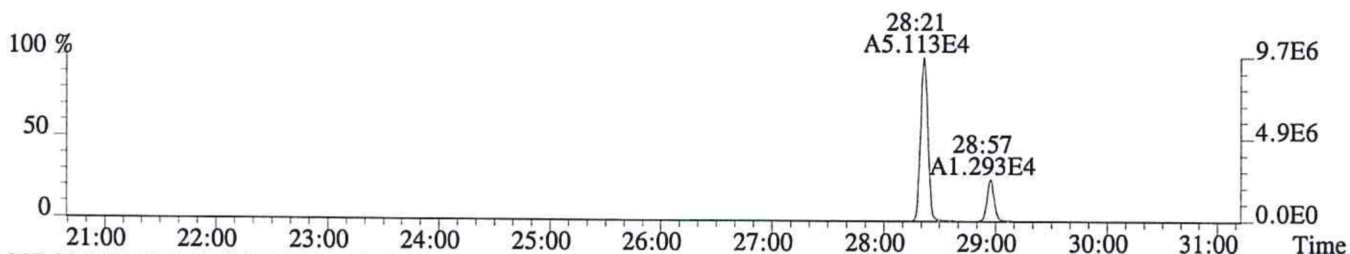
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



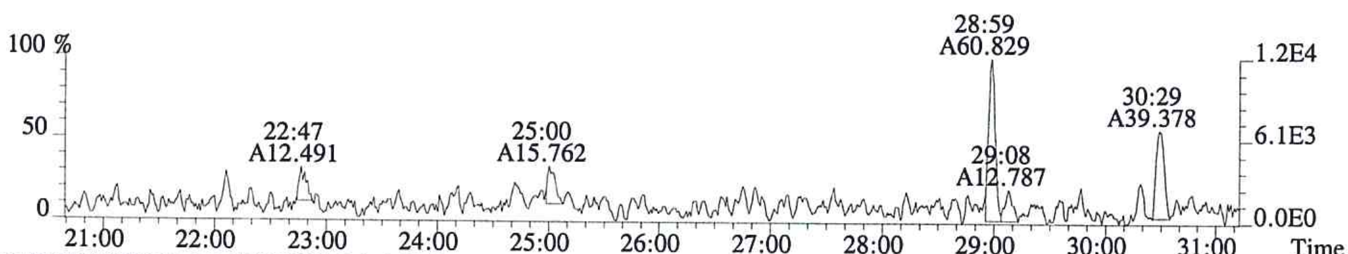
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5980.0,1.00%,F,T)



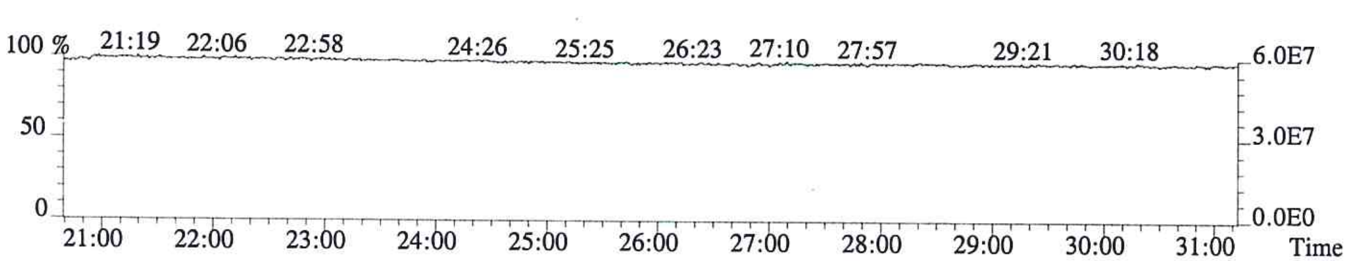
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4644.0,1.00%,F,T)



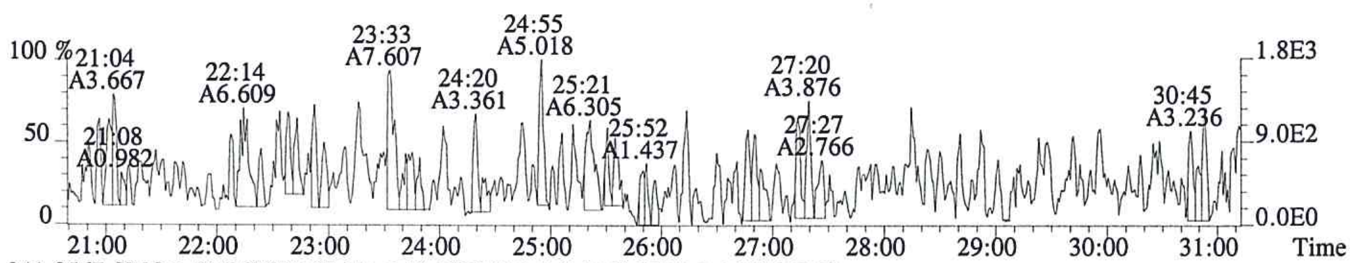
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



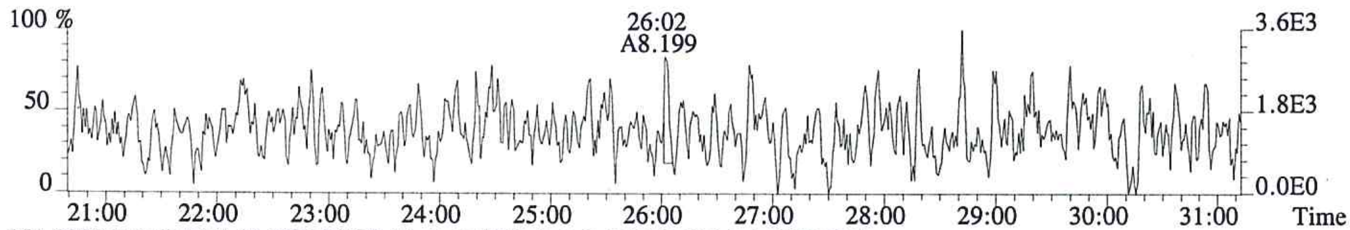
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



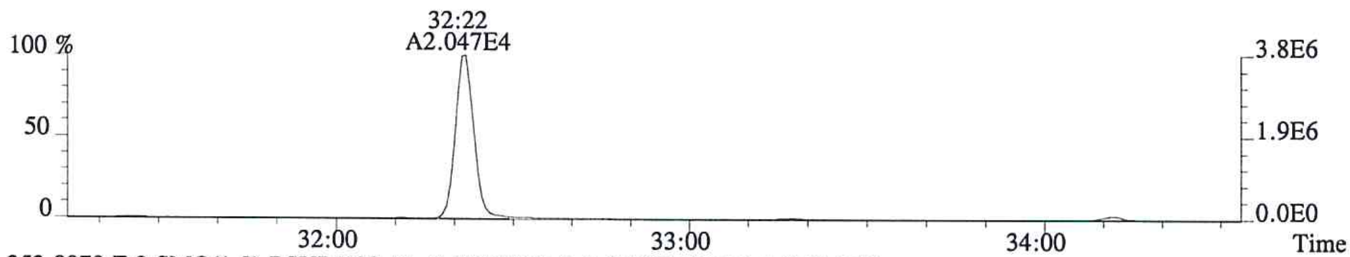
File:P604007 #1-749 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



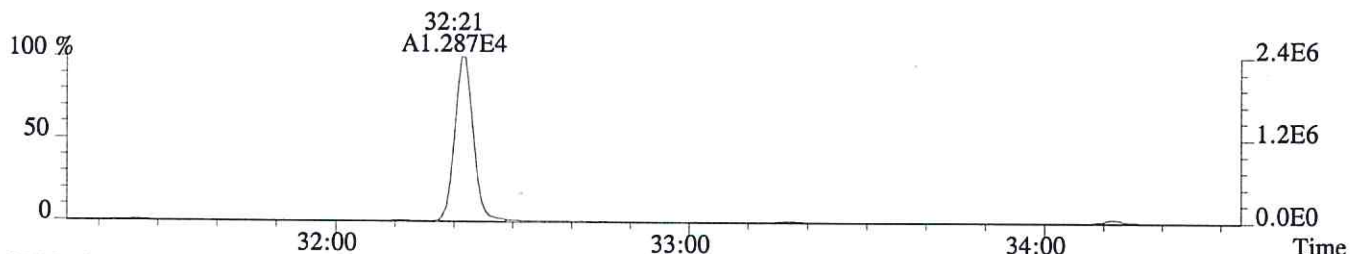
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



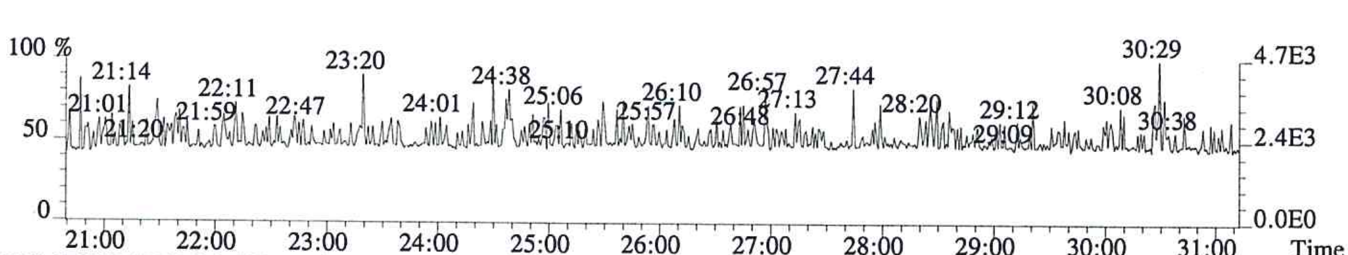
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



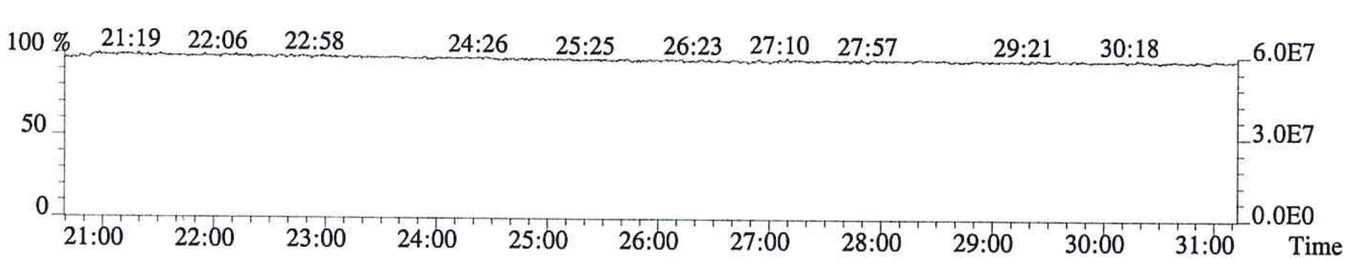
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

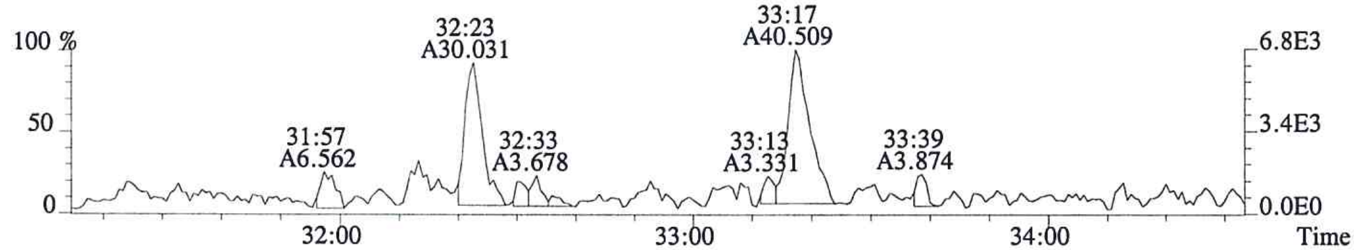


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

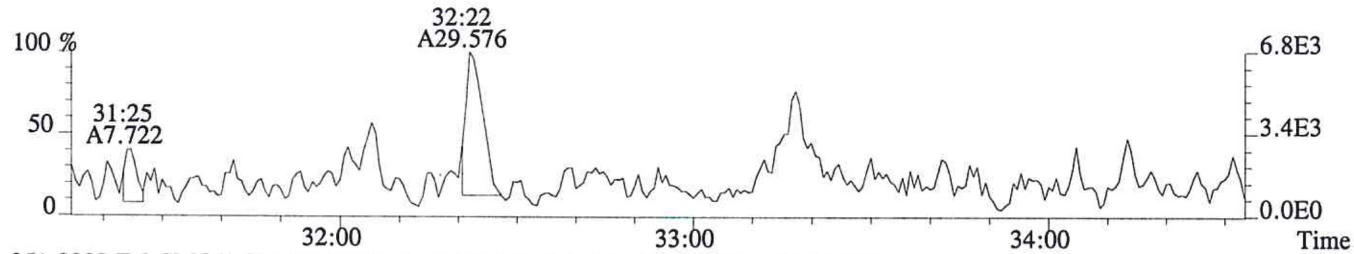


File:P604007 #1-299 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

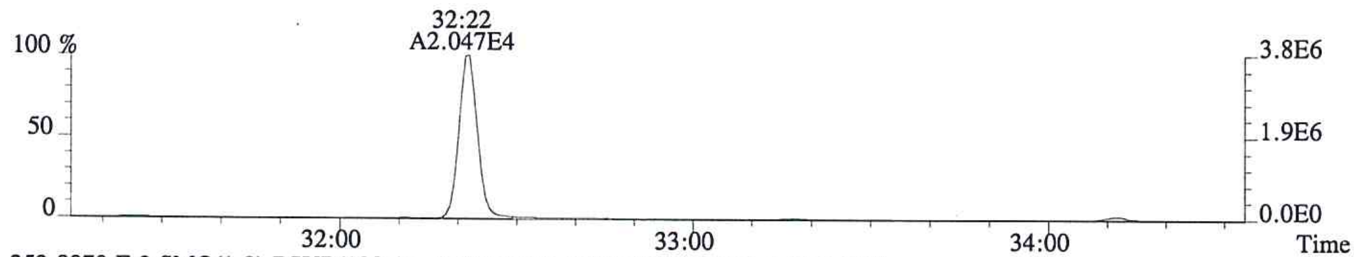
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



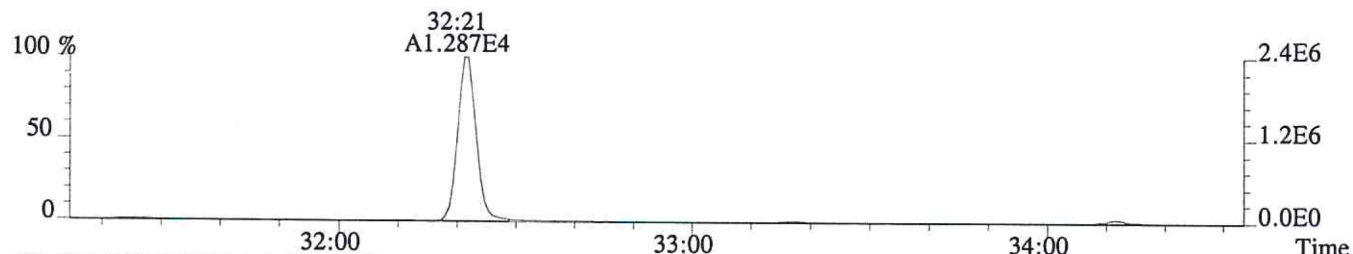
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



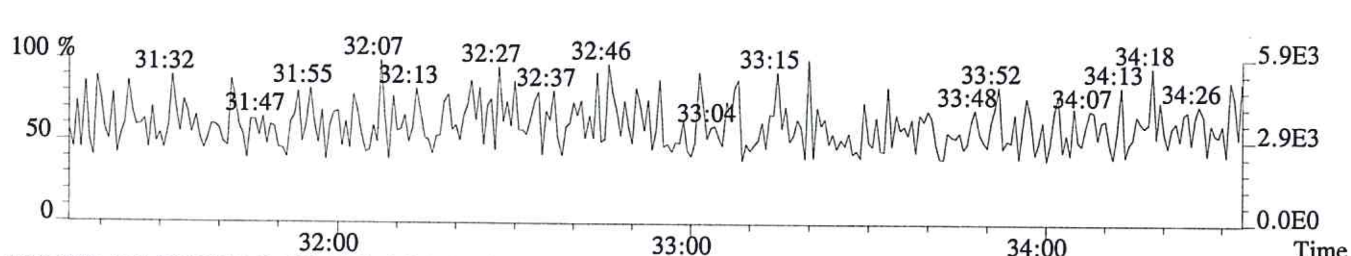
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



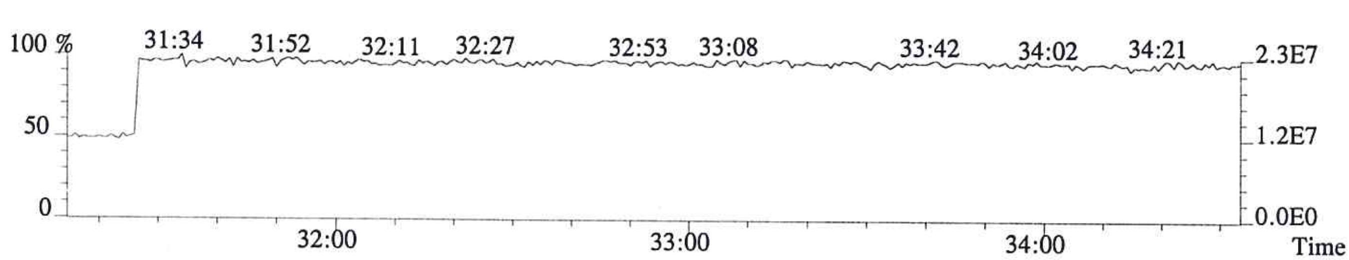
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

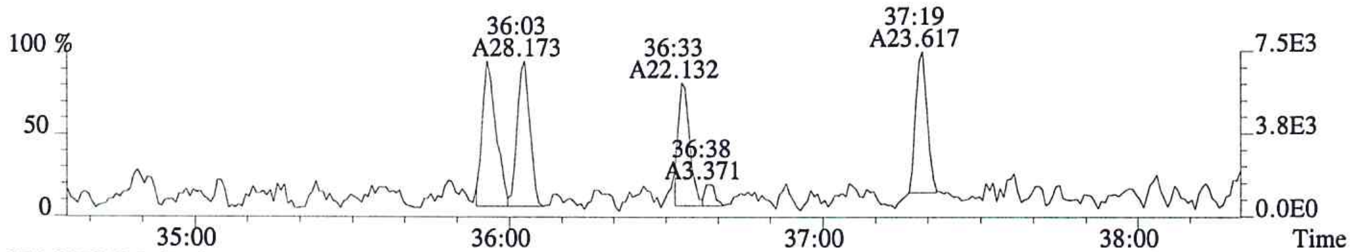


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

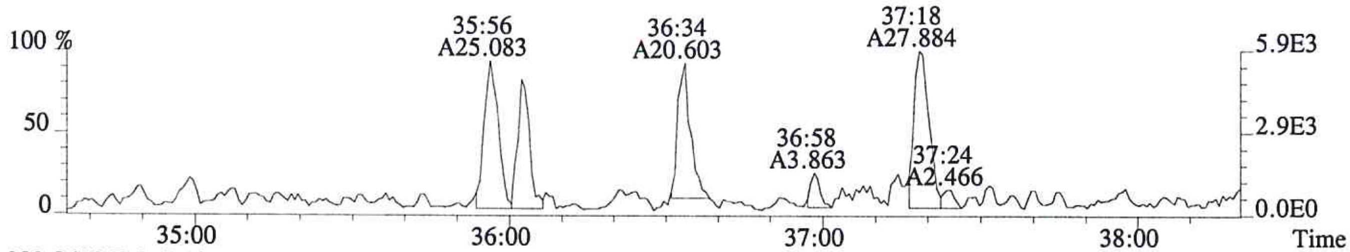


File:P604007 #1-337 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

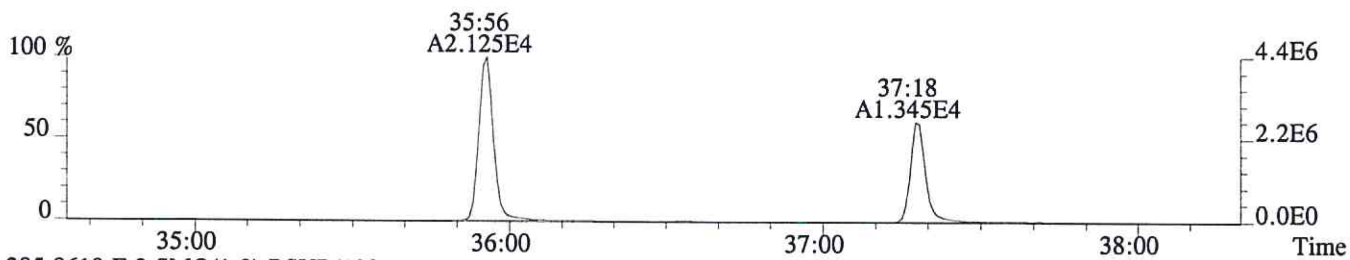
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



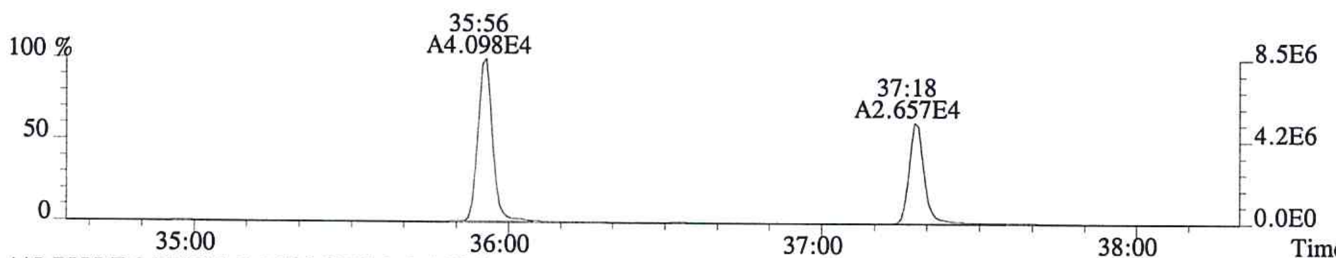
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



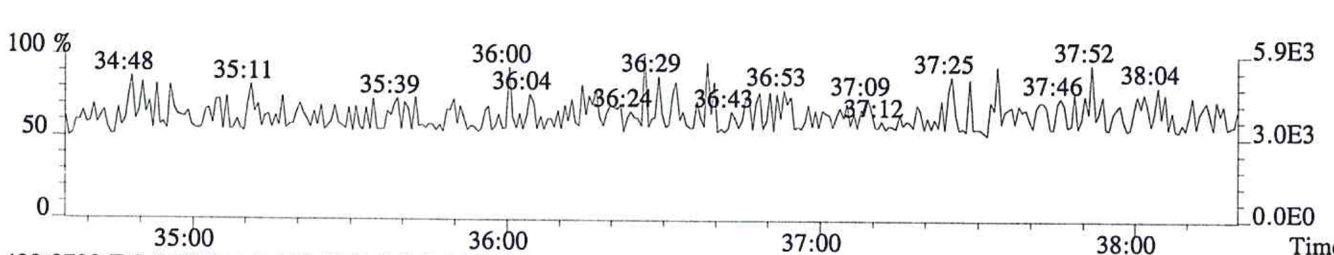
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



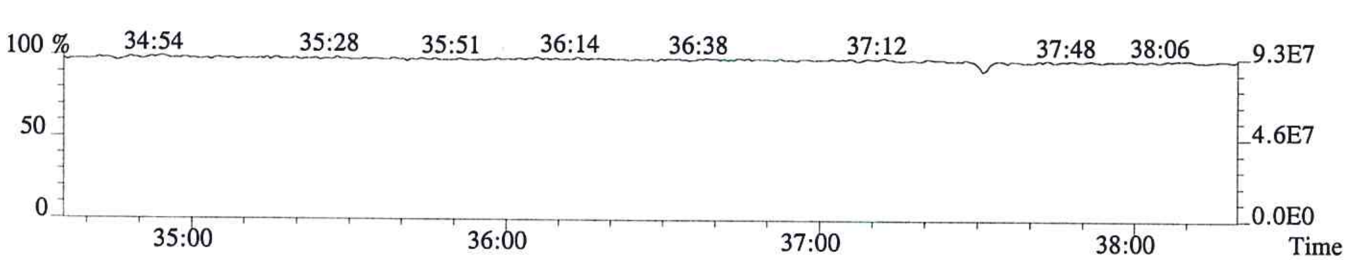
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



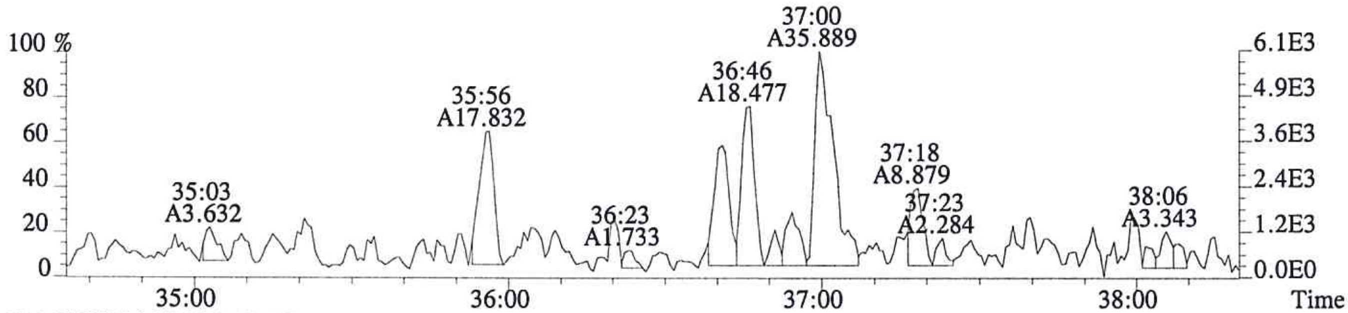
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



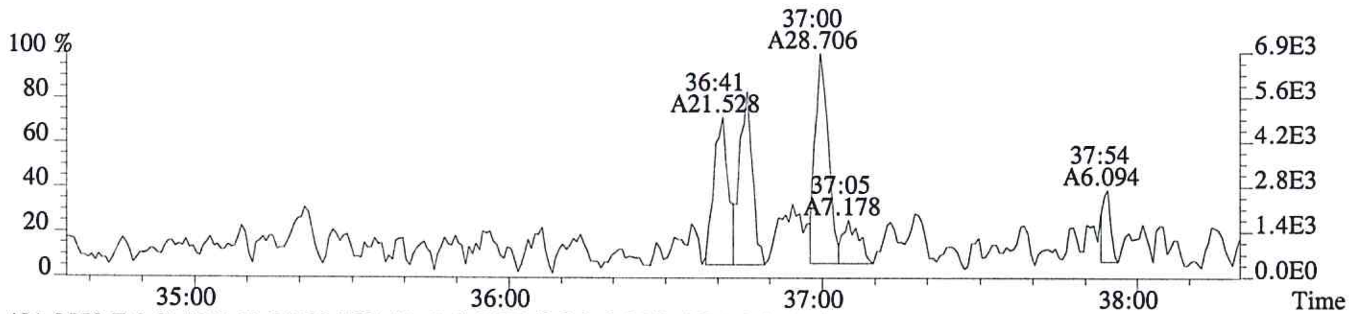
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



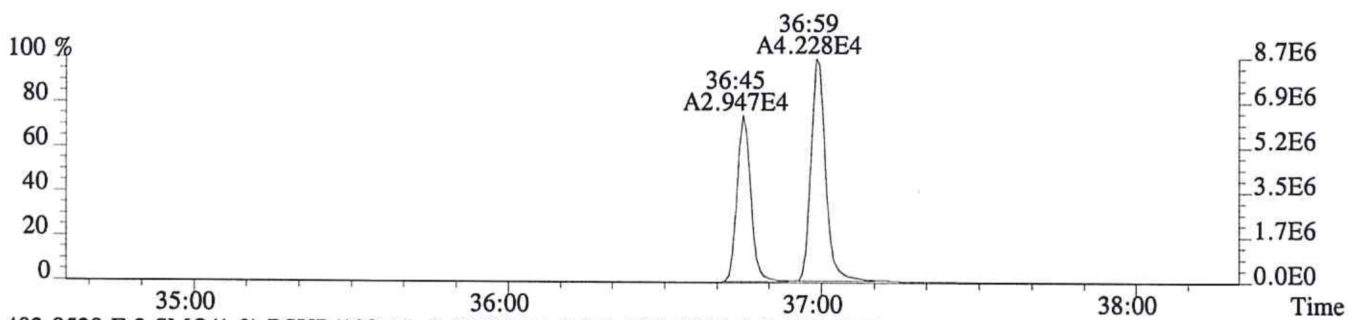
File:P604007 #1-337 Acq:26-JUN-2016 11:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



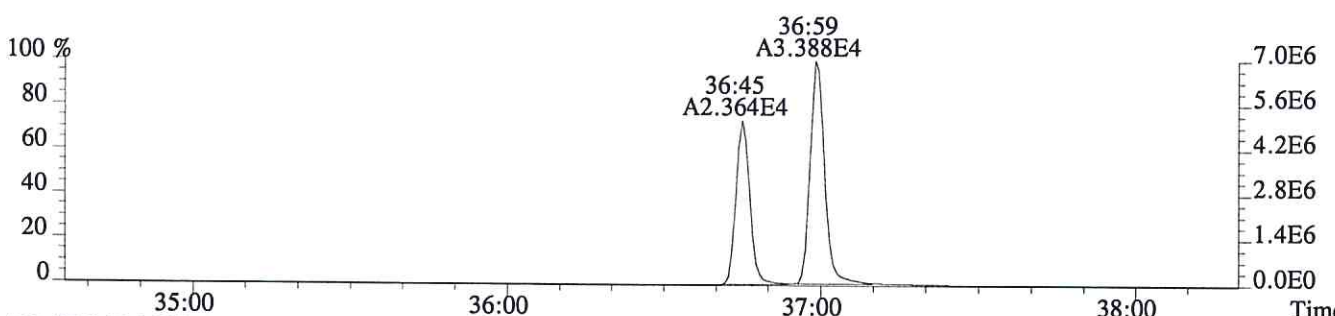
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



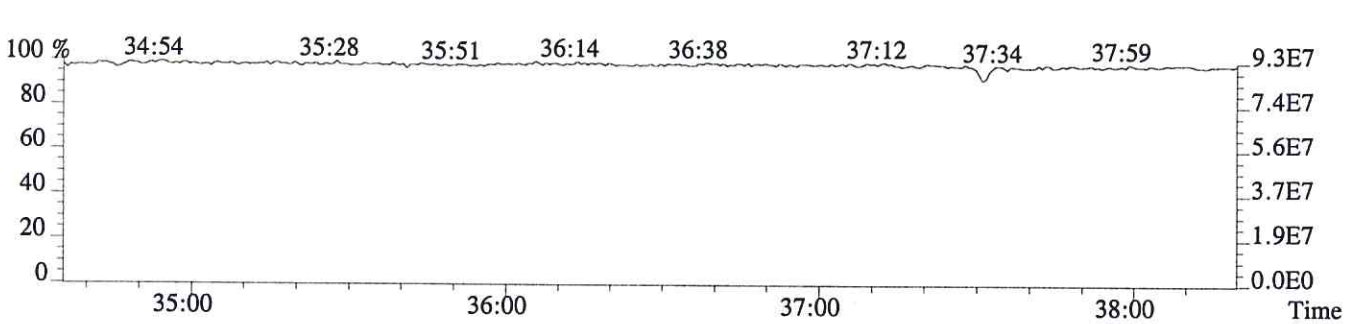
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4024.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2292.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #10 Filename P604016 Samp: 1 Inj: 1 Acquired: 26-JUN-16 18:59:32
Processed: 7-JUL-16 08:59:11 Sample ID: EQ1600220-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:12	2.611e+03	3.524e+03	0.74	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	2.259e+04	1.466e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:58	2.329e+03	2.902e+03	0.80	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.443e+04	1.841e+04	0.78	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:21	2.436e+04	1.556e+04	1.57	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.849e+04	3.576e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:57	1.086e+04	1.379e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:21	3.800e+04	4.825e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.476e+04	3.553e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	1.319e+02				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #10 Filename P604016 Samp: 1 Inj: 1 Acquired: 26-JUN-16 18:59:32
Processed: 7-JUL-16 08:59:11 LAB. ID: EQ1600220-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.73e+05	1.26e+03	3.8e+02	6.35e+05	2.66e+03	2.4e+02
3	2,3,4,7,8-PeCDF	4.39e+06	1.77e+03	2.5e+03	2.88e+06	9.32e+02	3.1e+03
11	2,3,7,8-TCDD	4.31e+05	1.52e+03	2.8e+02	5.38e+05	1.20e+03	4.5e+02
18	13C-2,3,7,8-TCDF	2.67e+06	5.78e+03	4.6e+02	3.39e+06	3.48e+03	9.7e+02
19	13C-1,2,3,7,8-PeCDF	4.63e+06	1.86e+03	2.5e+03	2.96e+06	1.70e+03	1.7e+03
20	13C-2,3,4,7,8-PeCDF	*	1.86e+03	*	*	1.70e+03	*
24	13C-1,2,3,7,8,9-HxCDF	3.84e+06	1.06e+03	3.6e+03	7.49e+06	2.02e+03	3.7e+03
26	13C-1,2,3,4-TCDF	*	5.78e+03	*	*	3.48e+03	*
27	13C-2,3,7,8-TCDD	2.13e+06	8.33e+03	2.6e+02	2.69e+06	3.92e+03	6.9e+02
33	13C-1,2,3,4-TCDD	7.36e+06	8.33e+03	8.8e+02	9.30e+06	3.92e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	9.74e+06	1.88e+03	5.2e+03	7.82e+06	1.24e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	2.45e+04	1.99e+03	1.2e+01			

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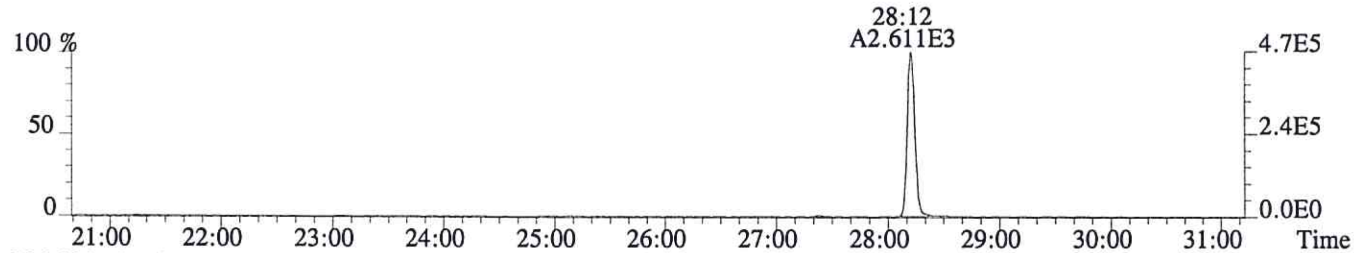
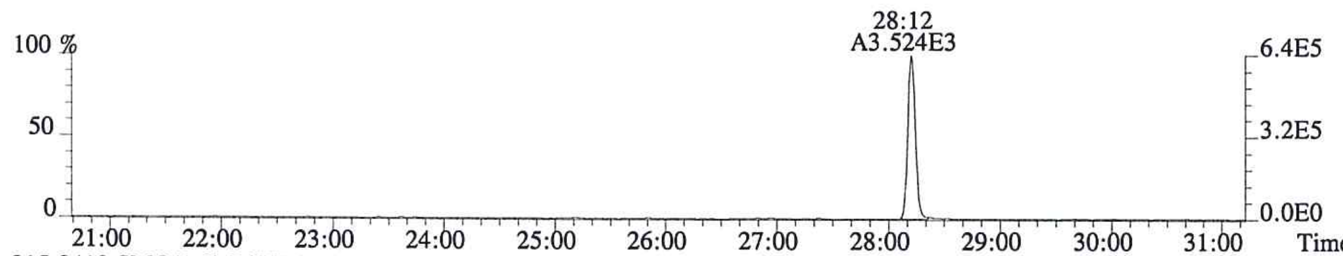
www.alsglobal.com

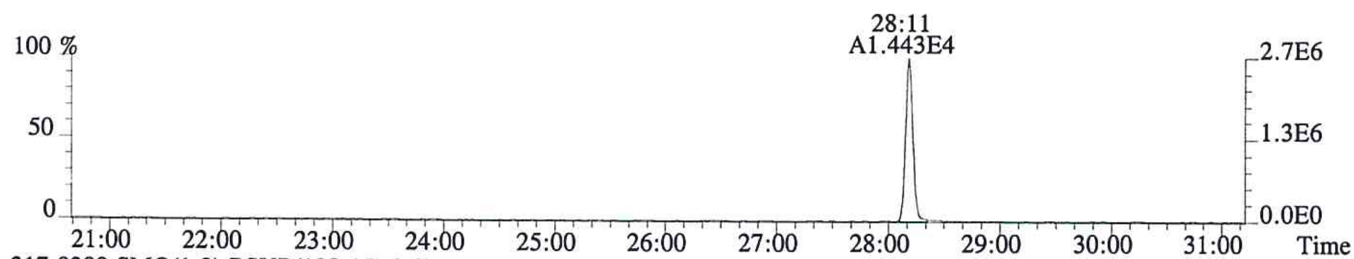
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



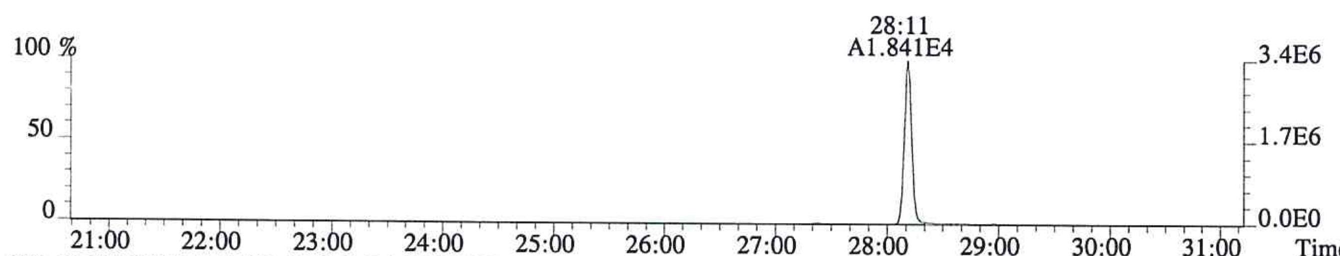
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2656.0,1.00%,F,T)



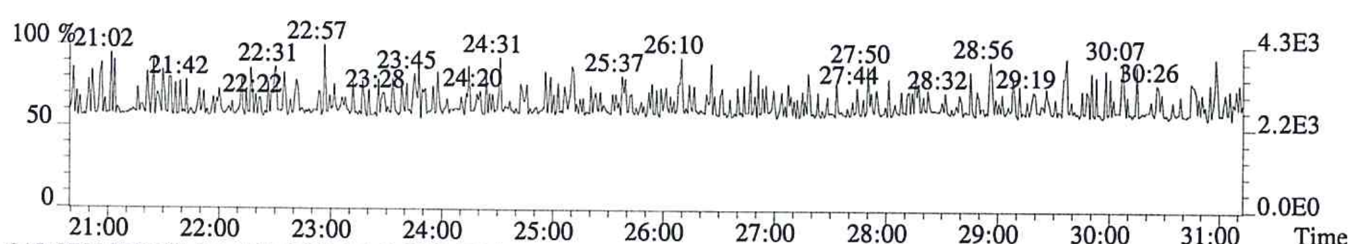
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5784.0,1.00%,F,T)



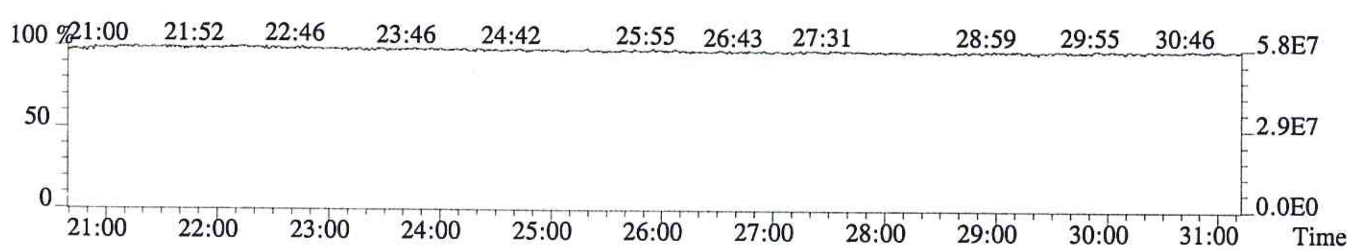
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



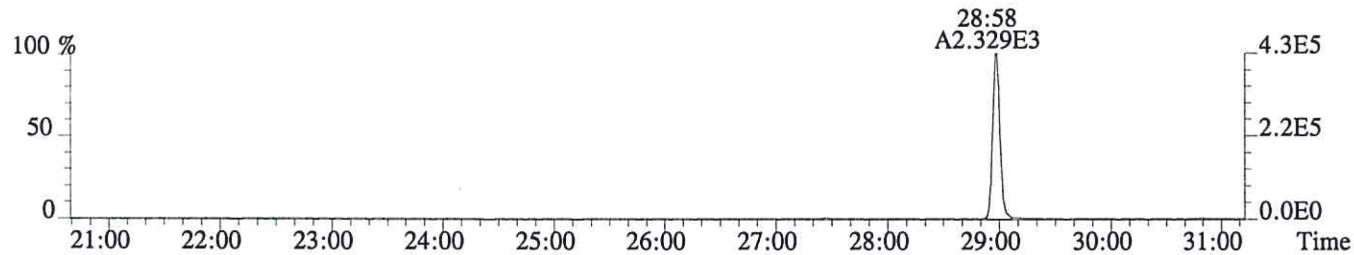
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



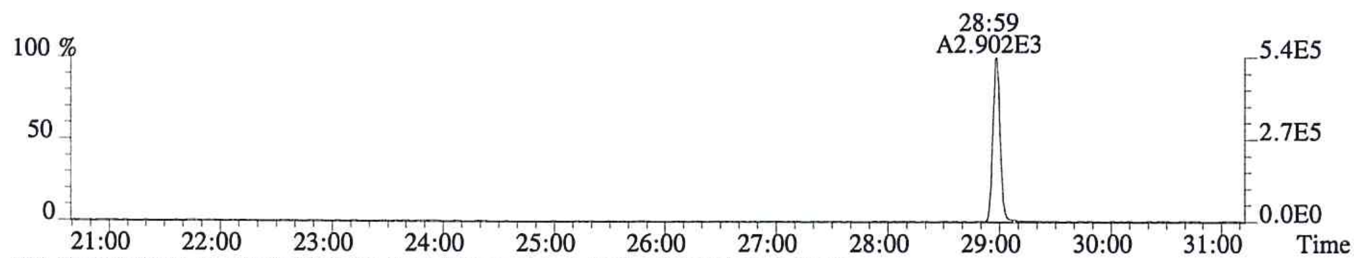
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



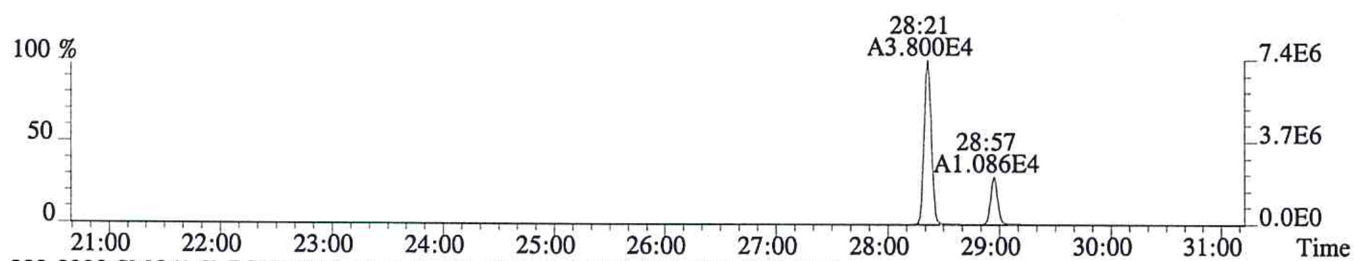
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



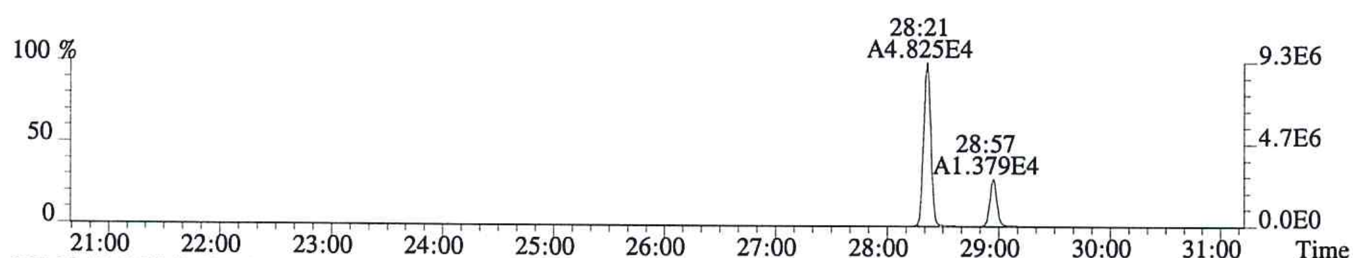
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



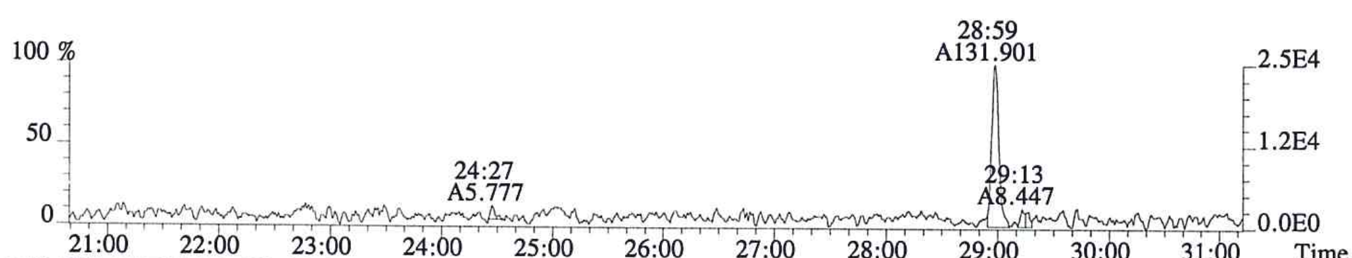
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8328.0,1.00%,F,T)



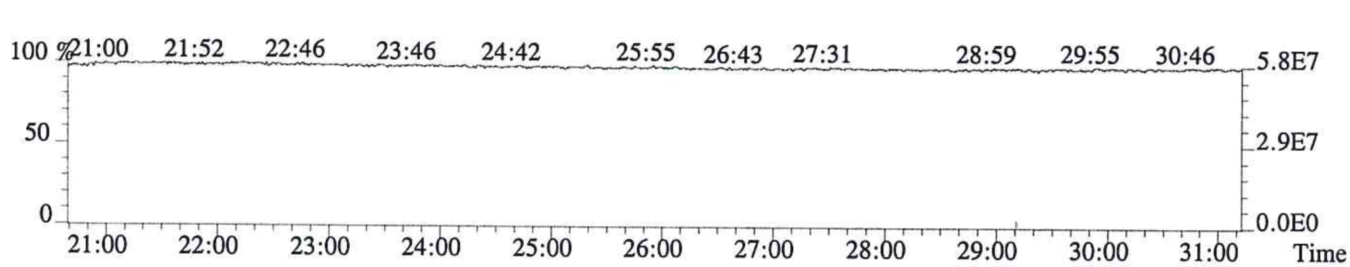
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3920.0,1.00%,F,T)



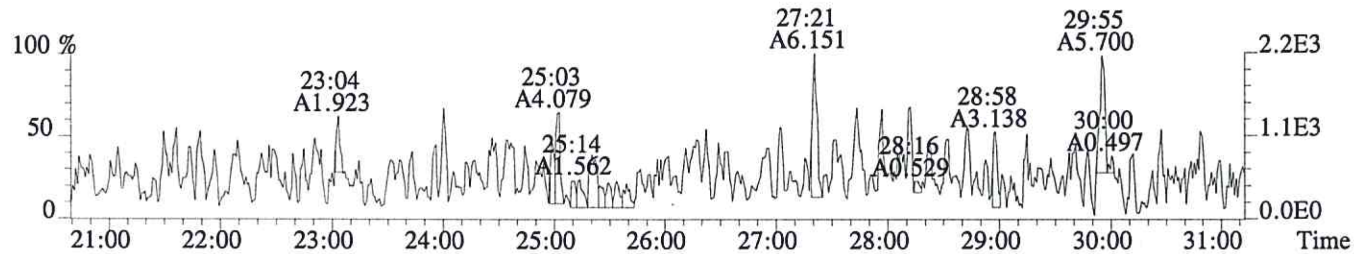
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



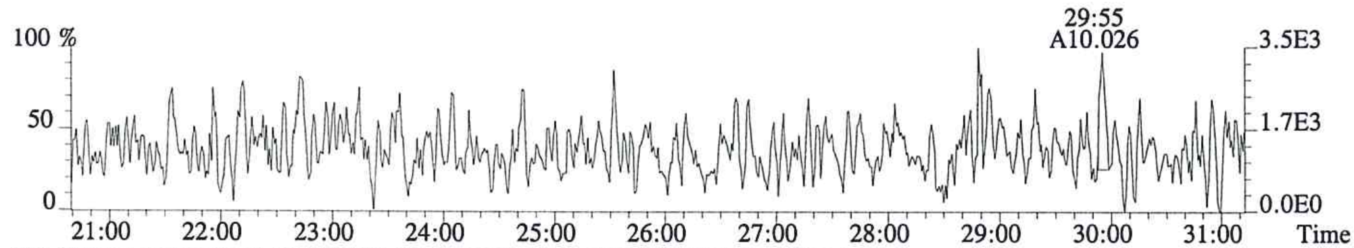
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



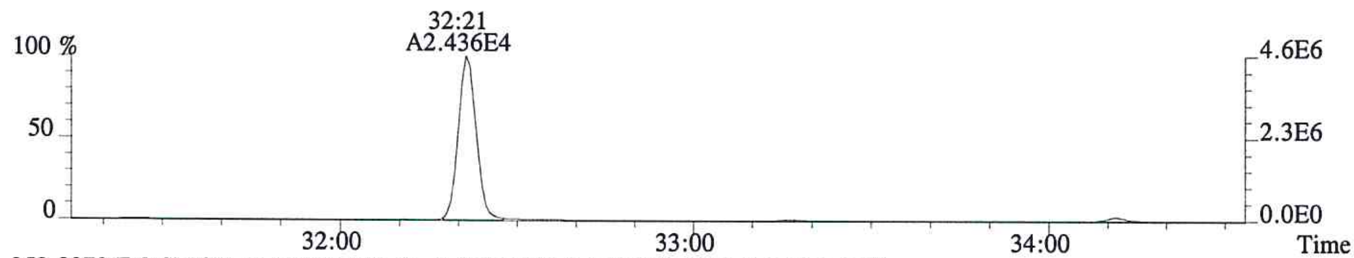
File:P604016 #1-749 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



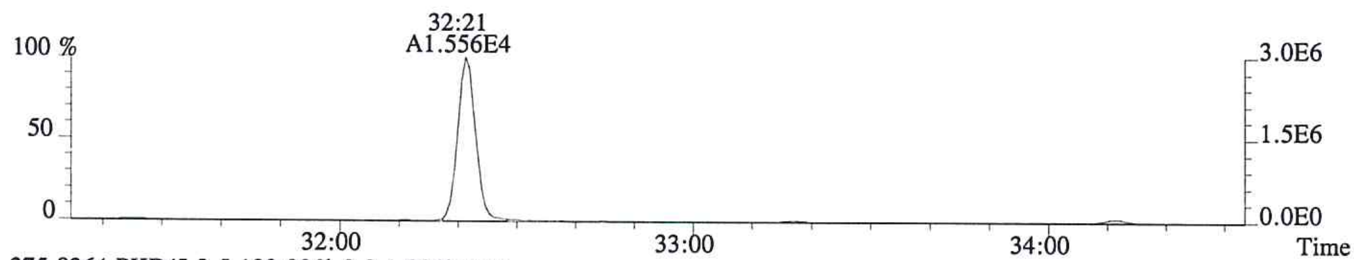
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



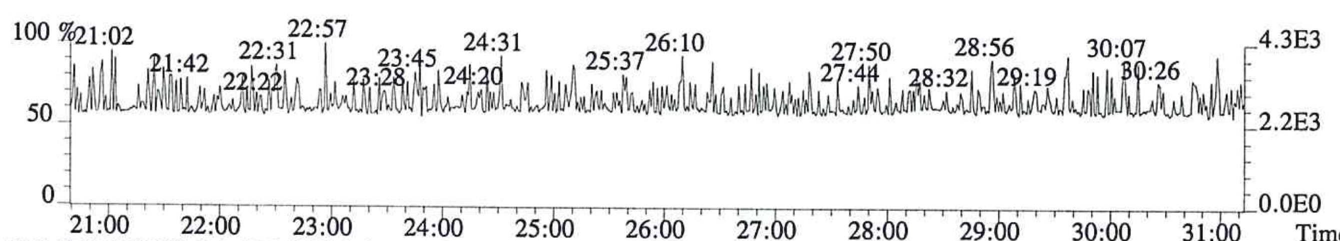
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



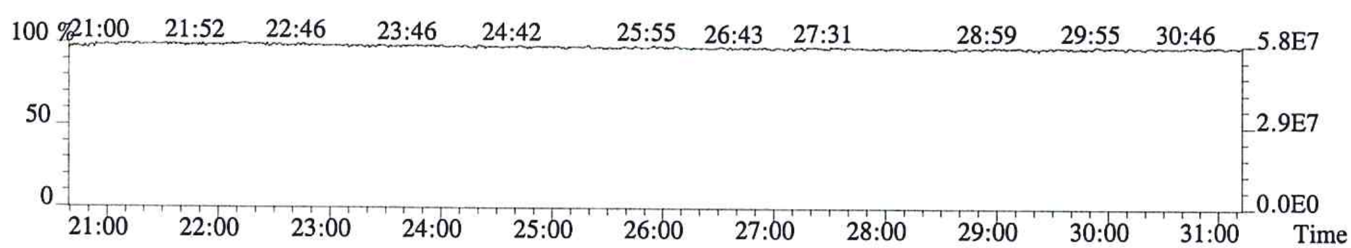
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



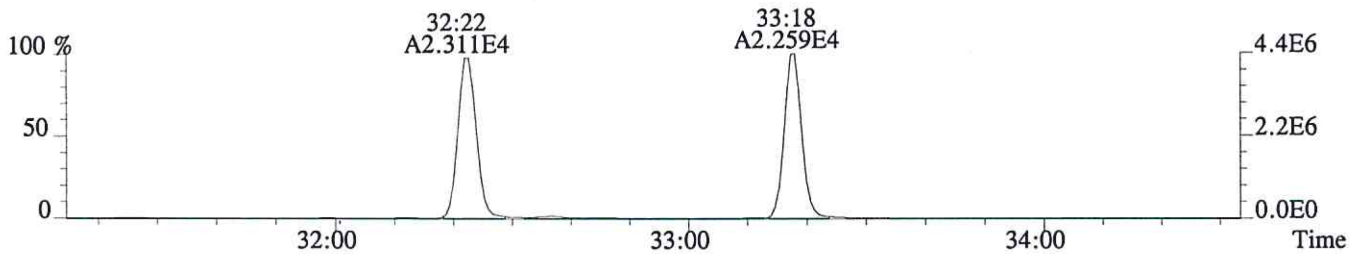
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



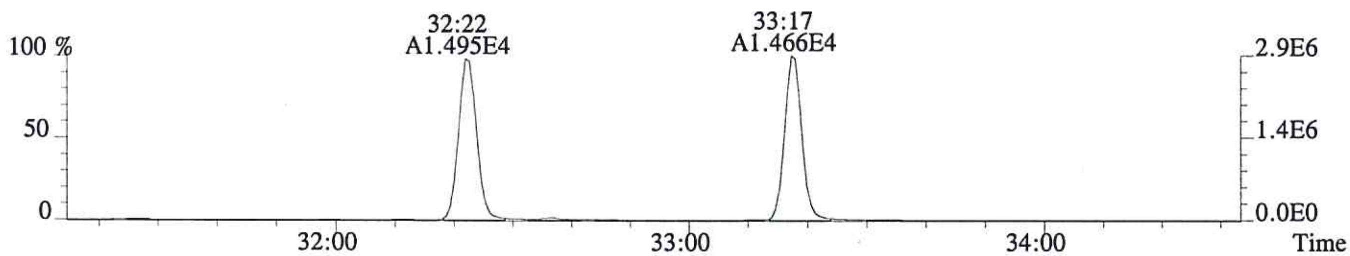
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



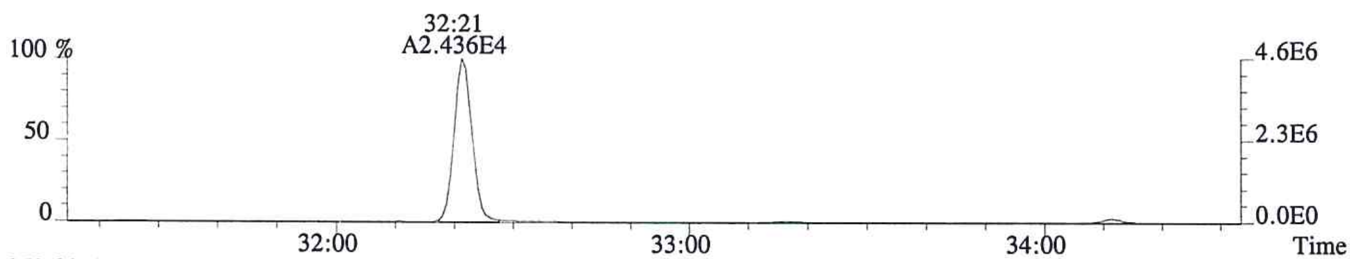
File:P604016 #1-299 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



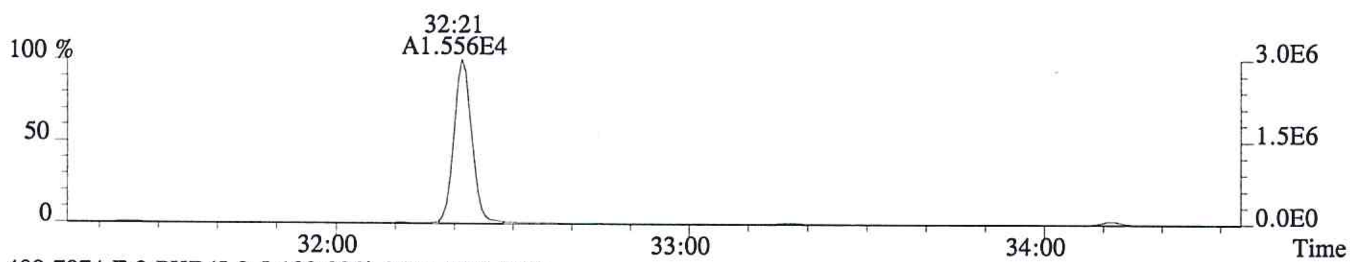
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



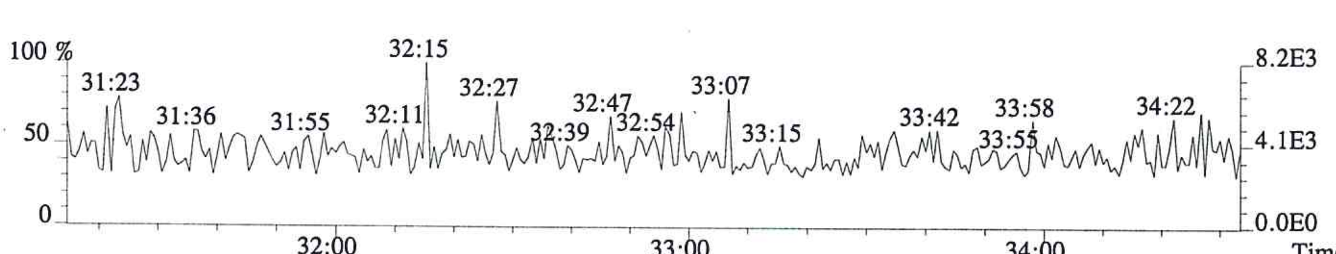
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



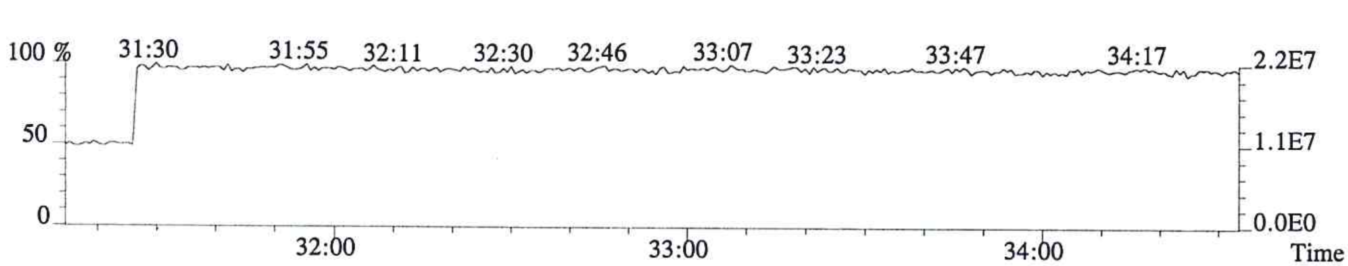
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

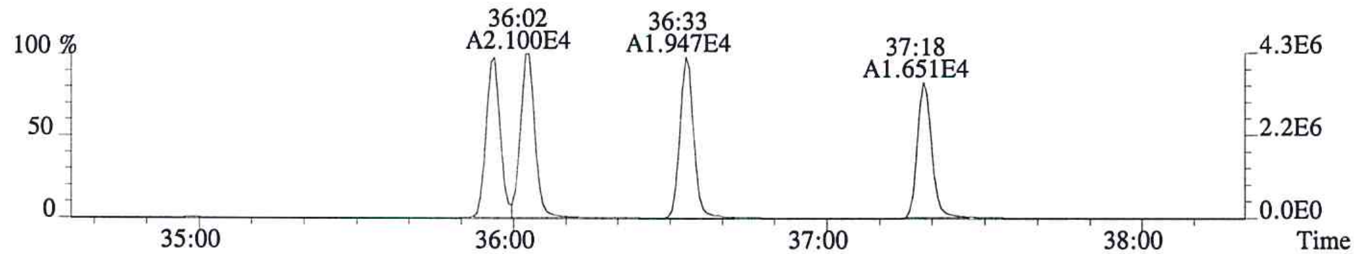


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

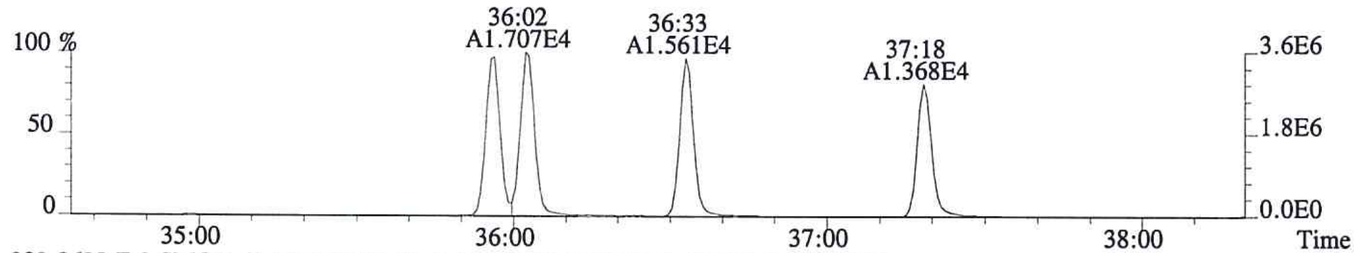


File:P604016 #1-337 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

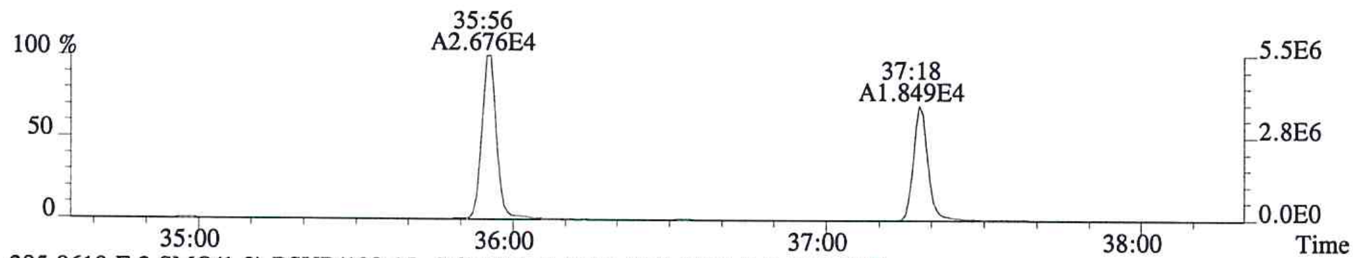
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



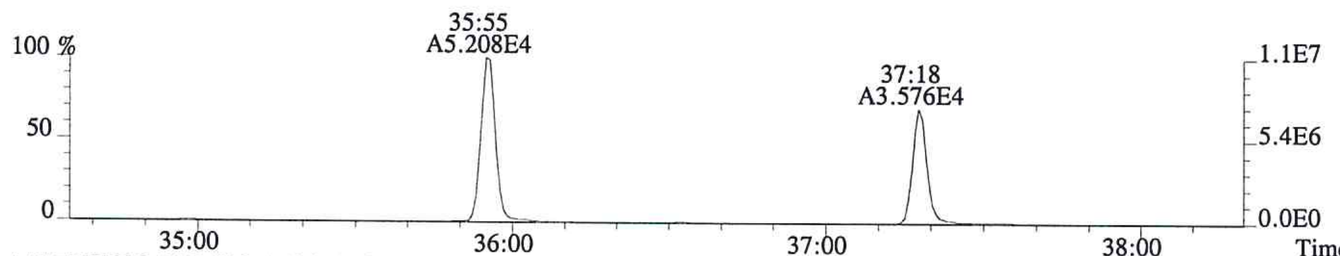
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



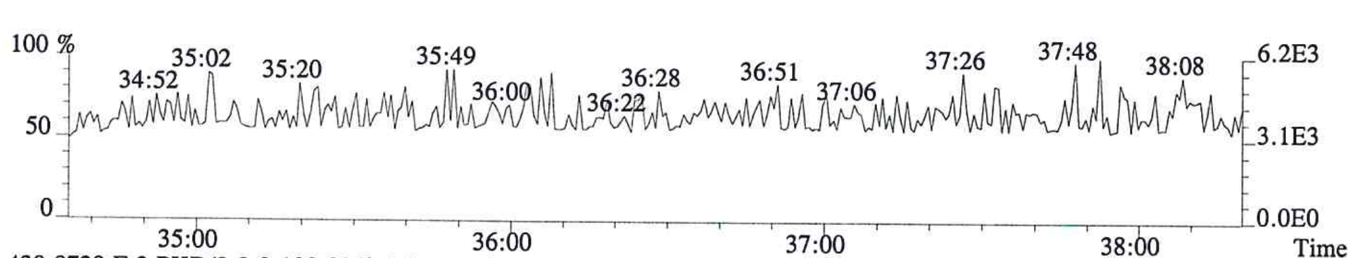
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



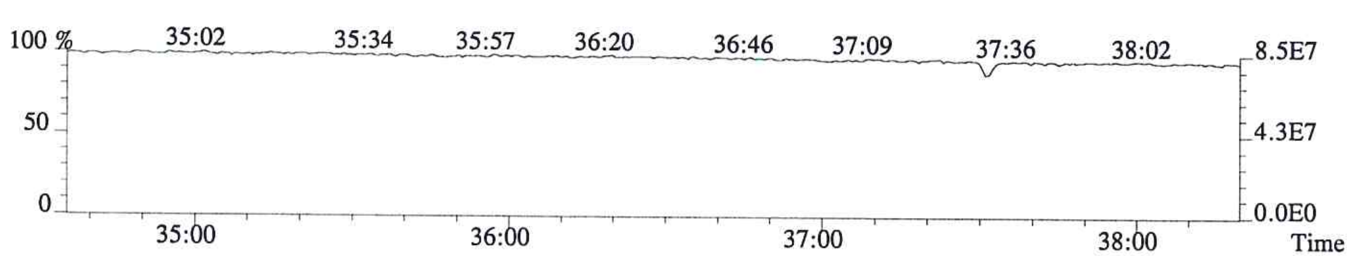
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2024.0,0.40%,F,T)



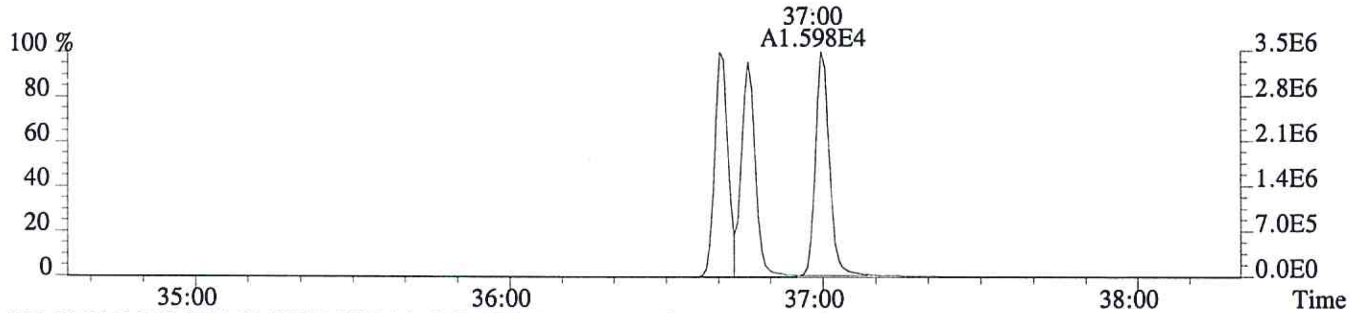
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



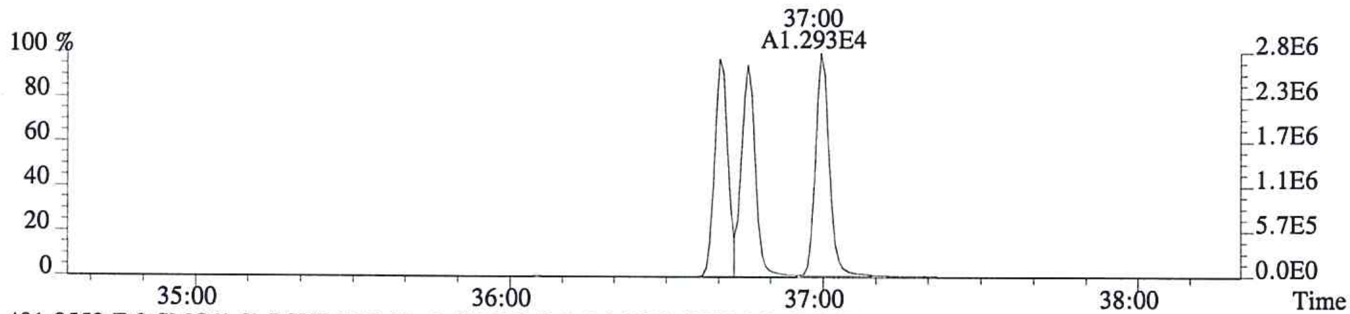
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



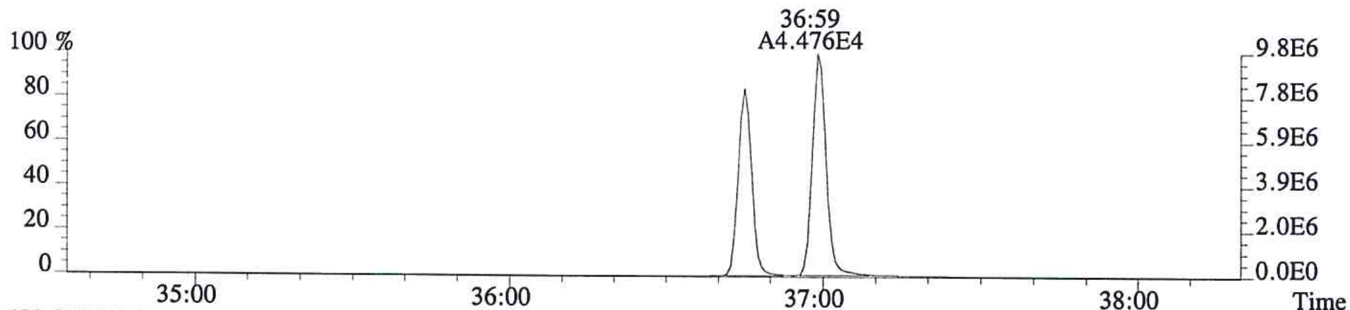
File:P604016 #1-337 Acq:26-JUN-2016 18:59:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



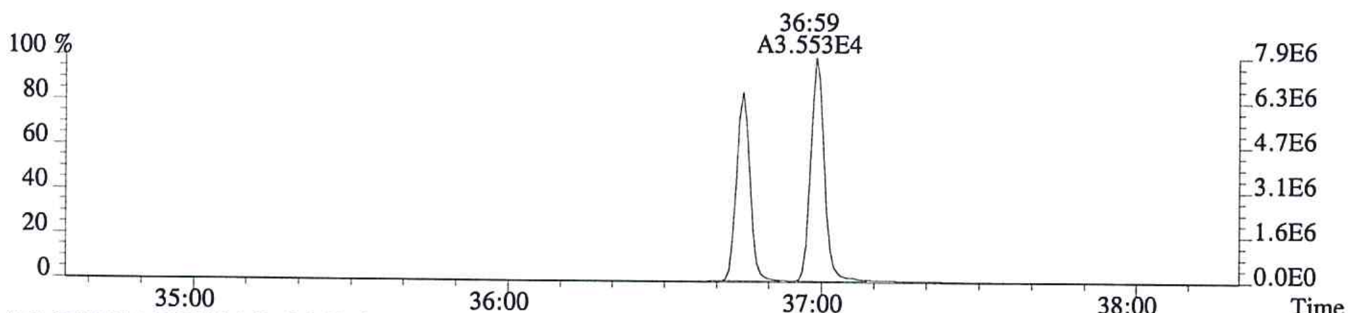
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



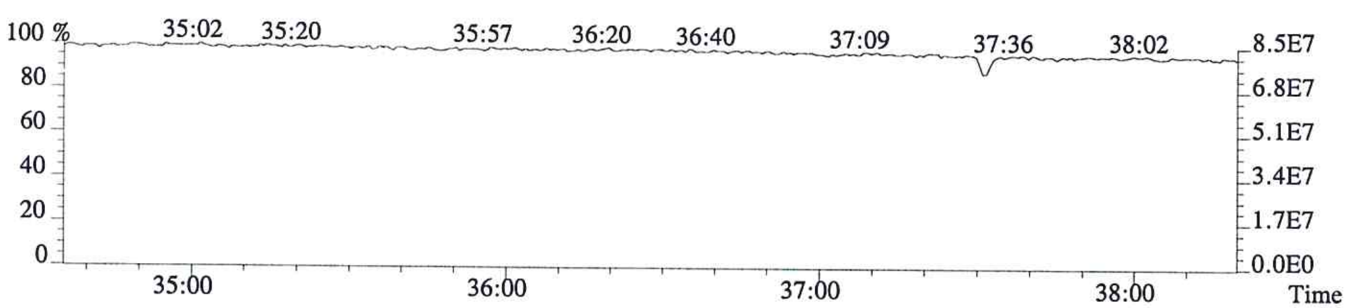
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #11 Filename P604017 Samp: 1 Inj: 1 Acquired: 26-JUN-16 19:48:33
Processed: 7-JUL-16 08:59:12 Sample ID: EQ1600220-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:13	3.963e+02	5.017e+02	0.79	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	3.387e+03	2.195e+03	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:59	3.177e+02	4.162e+02	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	1.977e+03	2.589e+03	0.76	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	3.624e+03	2.342e+03	1.55	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.227e+03	6.436e+03	0.50	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	NotFnd	*	*	*	no	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	1.569e+03	1.956e+03	0.80	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	5.153e+03	6.578e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	8.149e+03	6.718e+03	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:58	2.189e+01				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #11 Filename P604017 Samp: 1 Inj: 1 Acquired: 26-JUN-16 19:48:33
Processed: 7-JUL-16 08:59:12 LAB. ID: EQ1600220-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.50e+04	1.12e+03	6.7e+01	8.46e+04	3.27e+03	2.6e+01
3	2,3,4,7,8-PeCDF	6.91e+05	1.37e+03	5.0e+02	4.33e+05	2.52e+03	1.7e+02
11	2,3,7,8-TCDD	6.27e+04	1.65e+03	3.8e+01	8.14e+04	9.20e+02	8.8e+01
18	13C-2,3,7,8-TCDF	3.53e+05	6.04e+03	5.9e+01	4.52e+05	3.39e+03	1.3e+02
19	13C-1,2,3,7,8-PeCDF	6.76e+05	6.60e+02	1.0e+03	4.38e+05	1.31e+03	3.3e+02
20	13C-2,3,4,7,8-PeCDF	*	6.60e+02	*	*	1.31e+03	*
24	13C-1,2,3,7,8,9-HxCDF	6.75e+05	8.04e+02	8.4e+02	1.36e+06	1.62e+03	8.4e+02
26	13C-1,2,3,4-TCDF	*	6.04e+03	*	*	3.39e+03	*
27	13C-2,3,7,8-TCDD	2.88e+05	8.47e+03	3.4e+01	3.59e+05	3.44e+03	1.0e+02
33	13C-1,2,3,4-TCDD	9.77e+05	8.47e+03	1.2e+02	1.22e+06	3.44e+03	3.6e+02
34	13C-1,2,3,7,8,9-HxCDD	1.74e+06	1.77e+03	9.8e+02	1.42e+06	1.75e+03	8.1e+02
35	37Cl-2,3,7,8-TCDD	4.59e+03	2.03e+03	2.3e+00			

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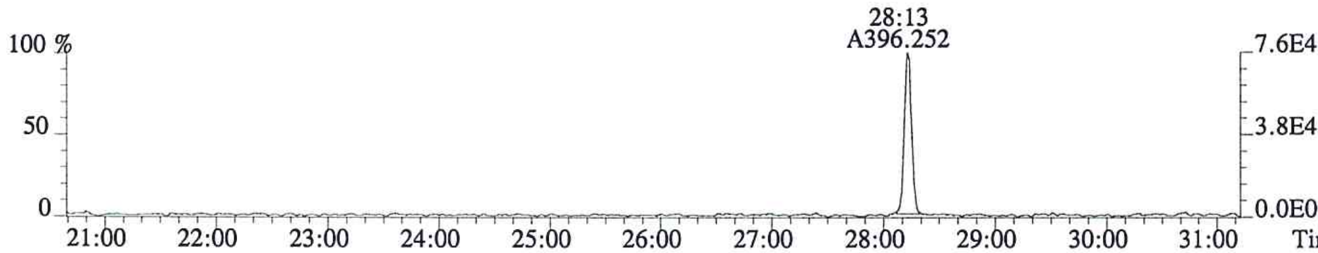
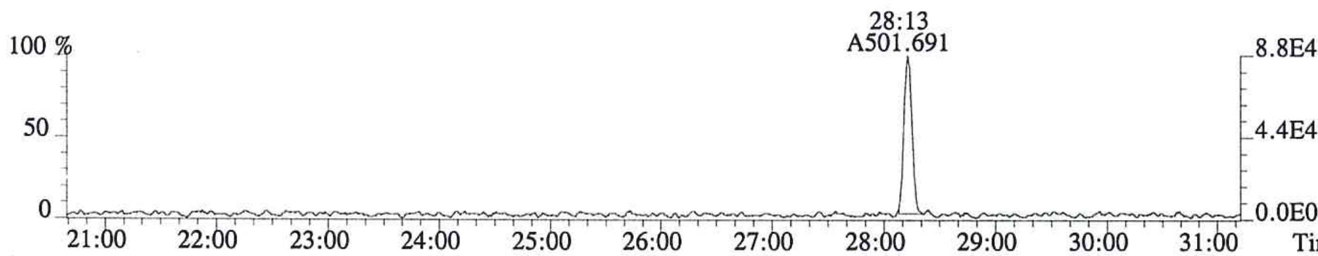
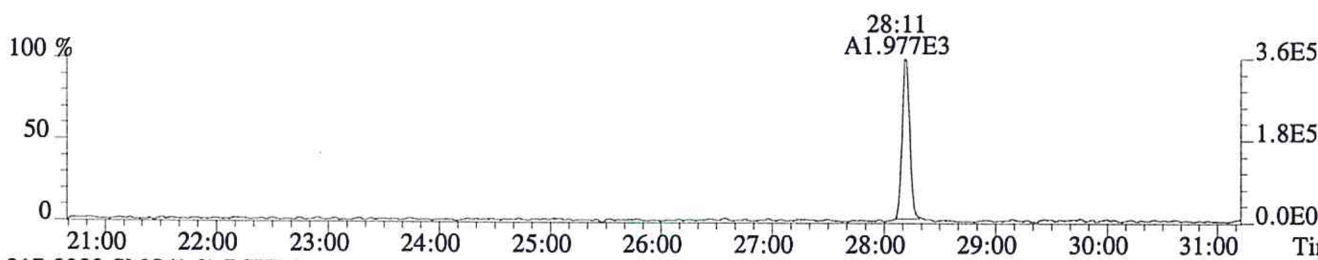
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



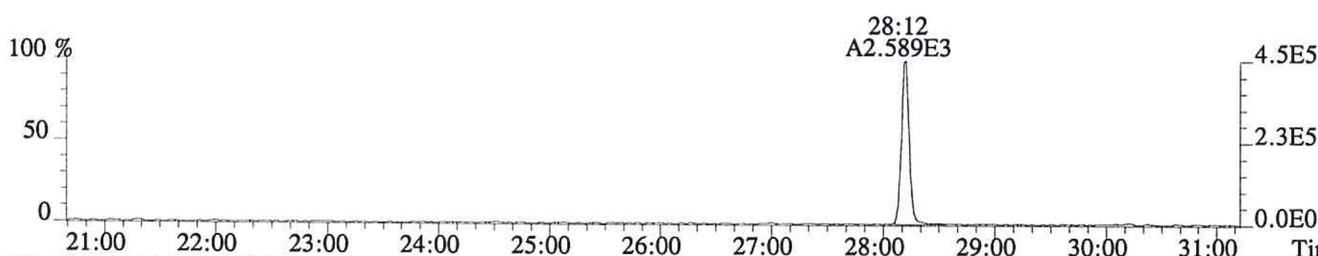
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3268.0,1.00%,F,T)



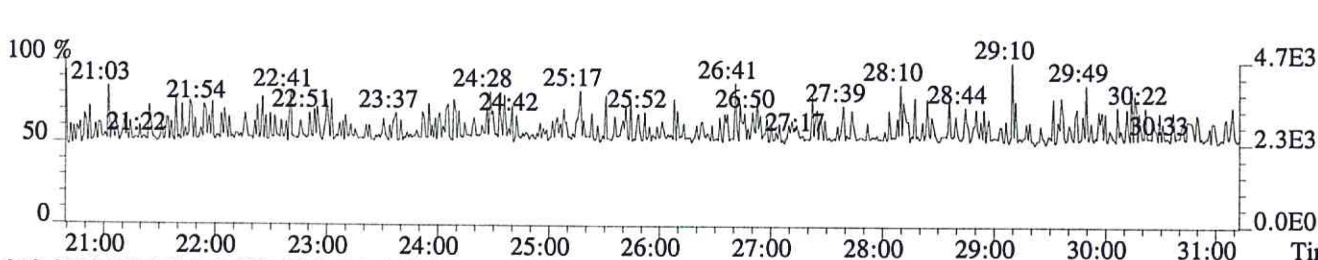
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6040.0,1.00%,F,T)



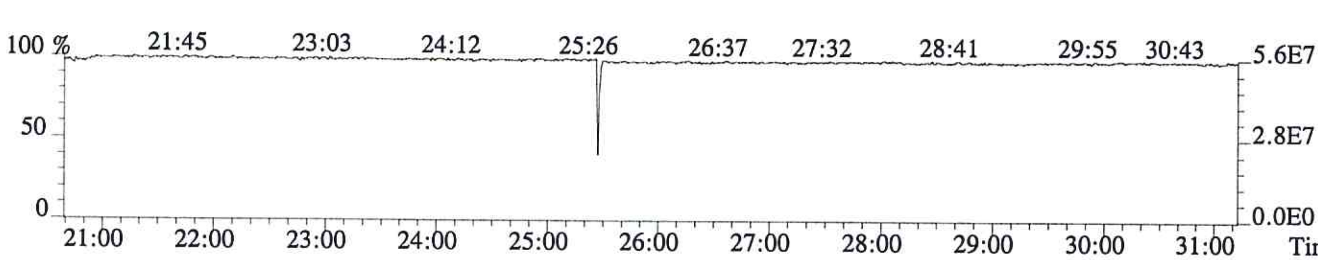
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)



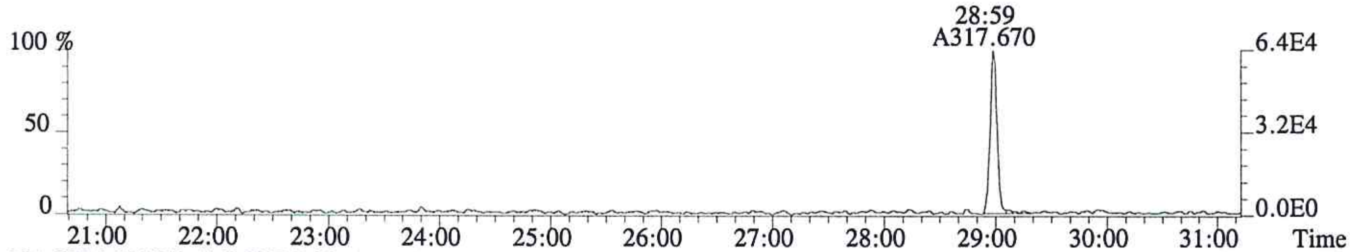
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



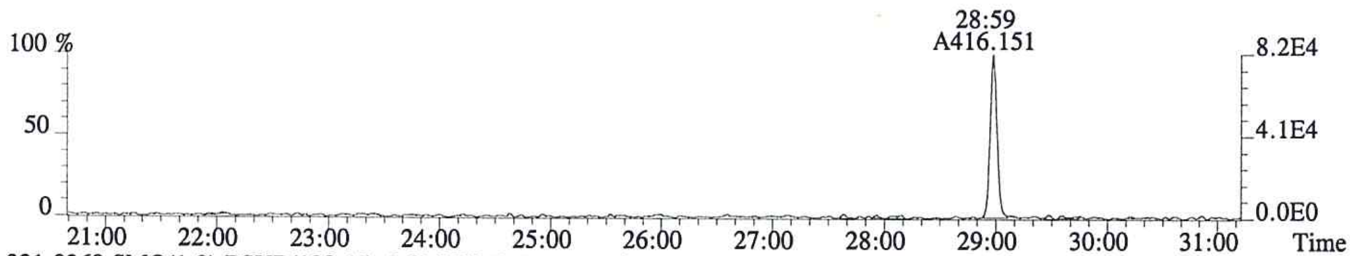
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



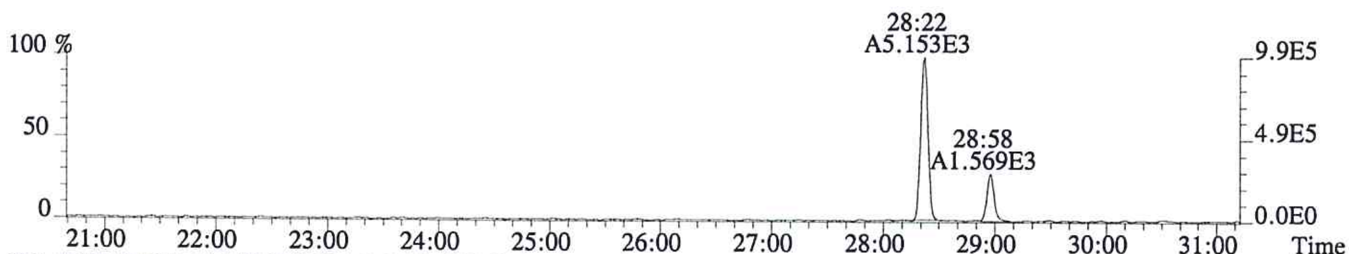
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



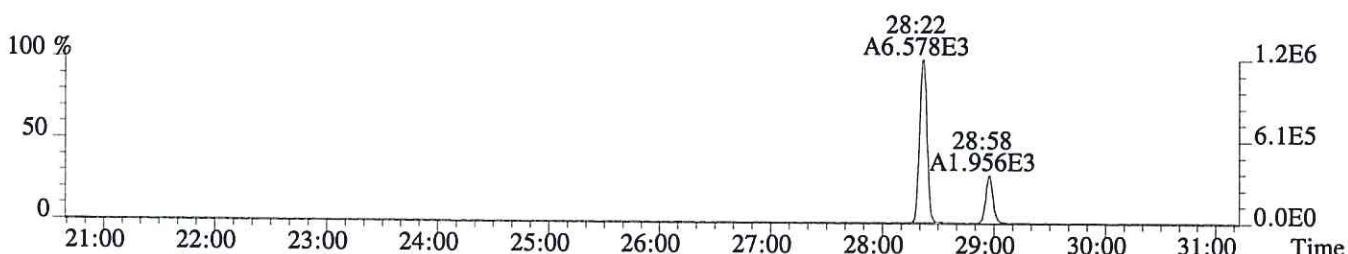
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



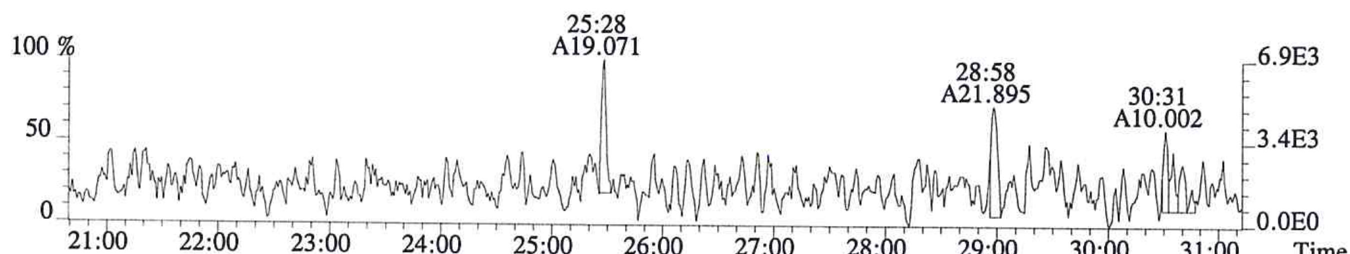
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8472.0,1.00%,F,T)



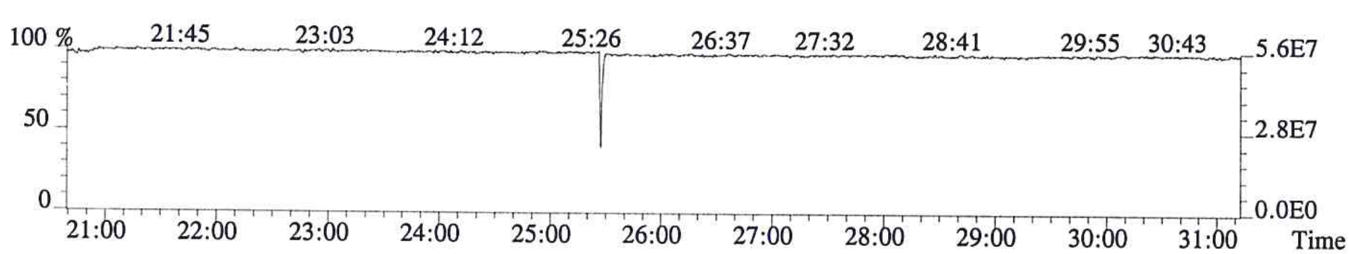
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



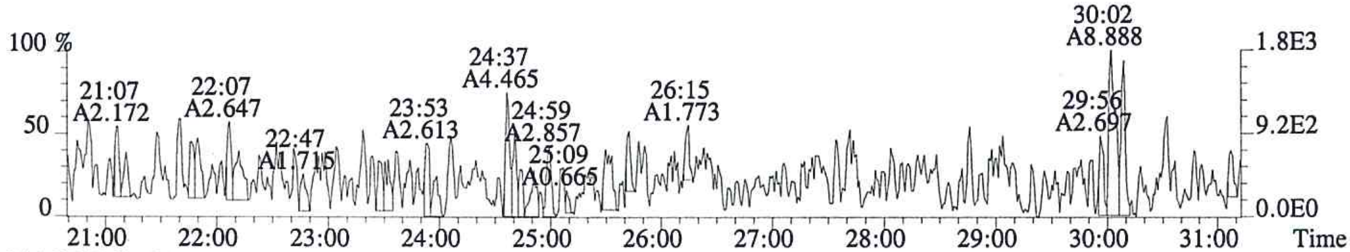
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



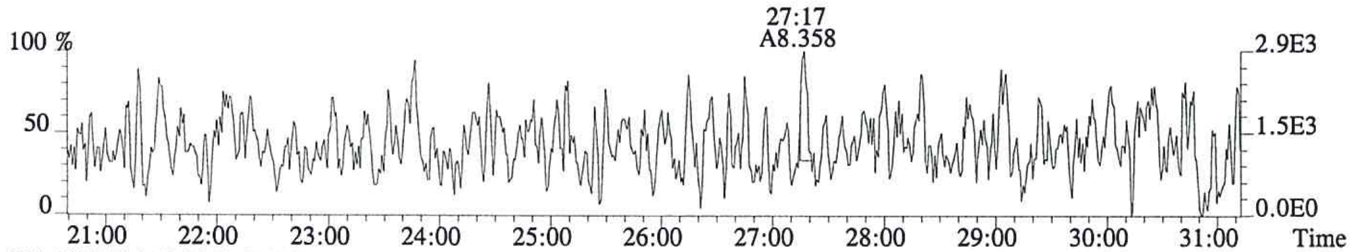
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



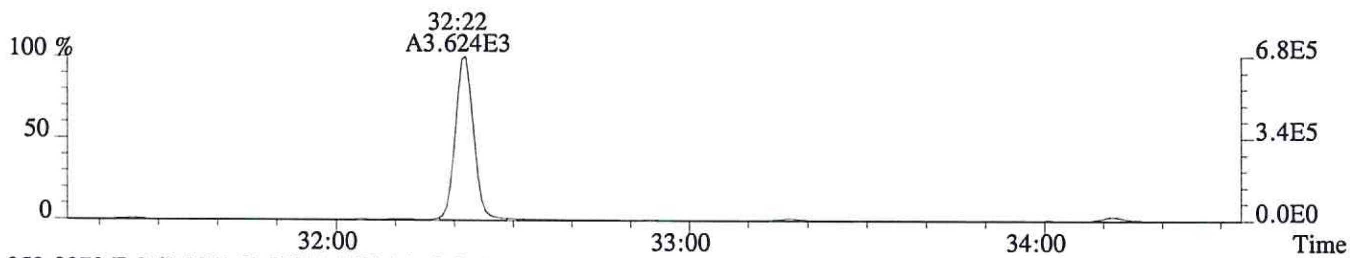
File:P604017 #1-749 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



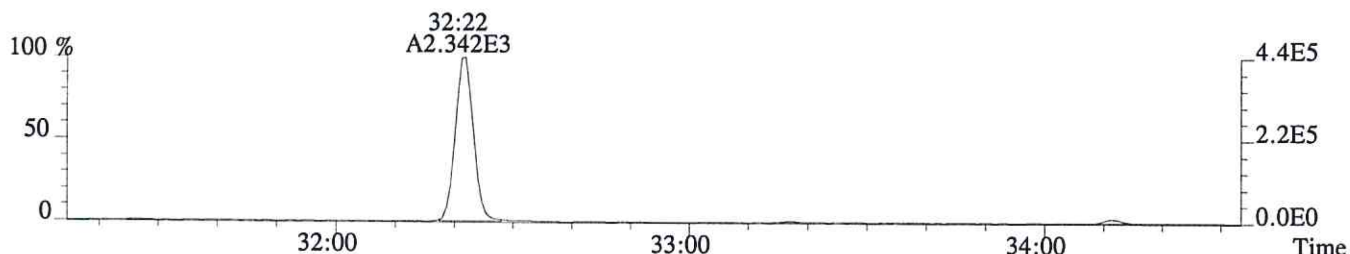
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



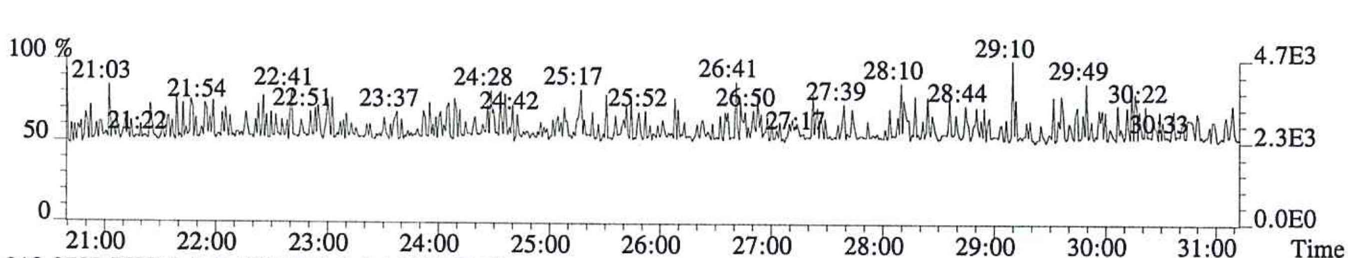
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



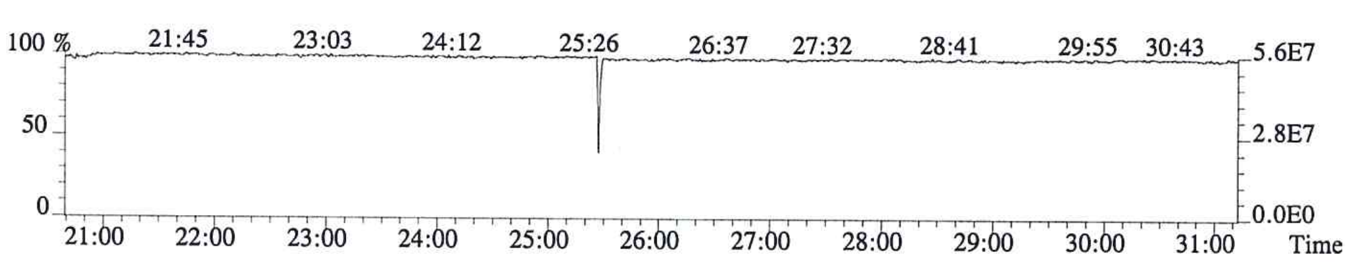
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



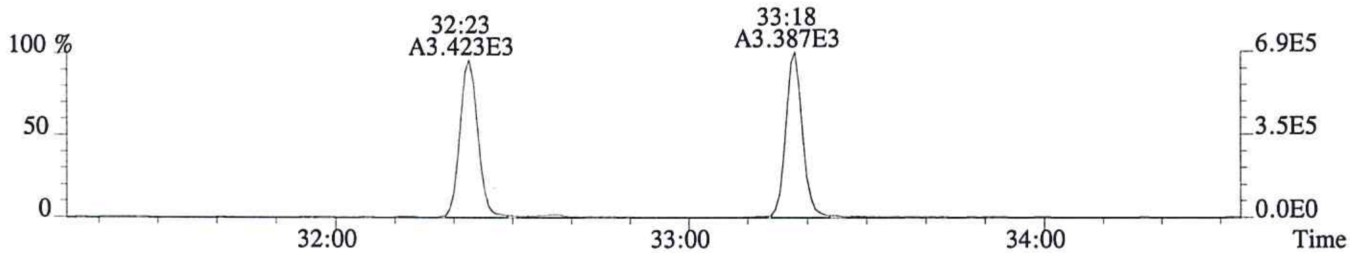
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



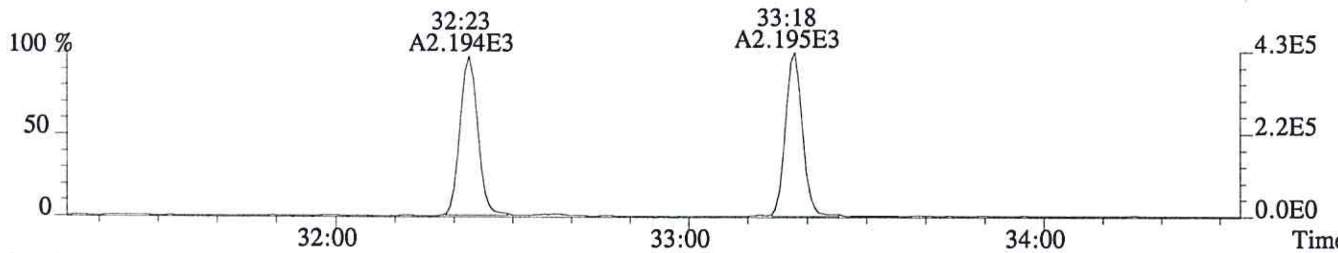
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



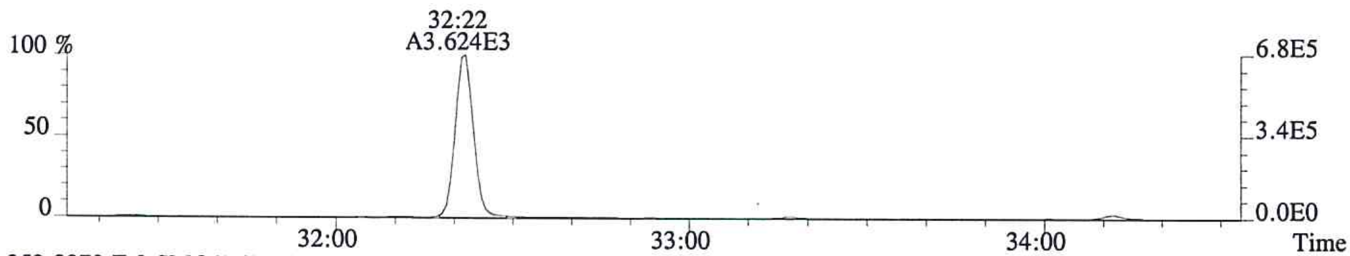
File:P604017 #1-299 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



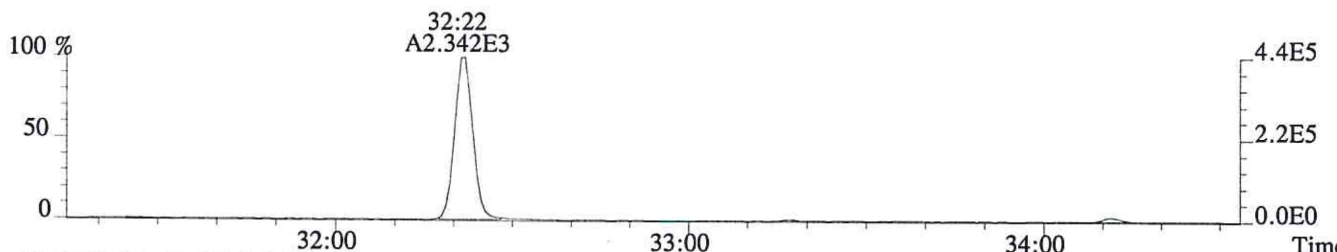
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



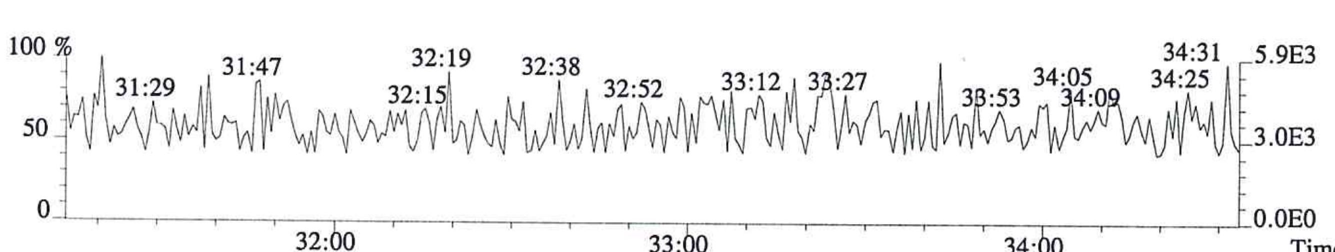
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



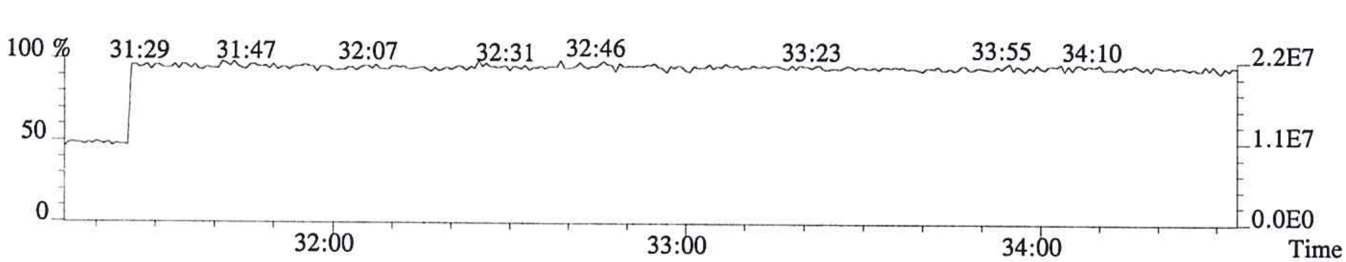
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

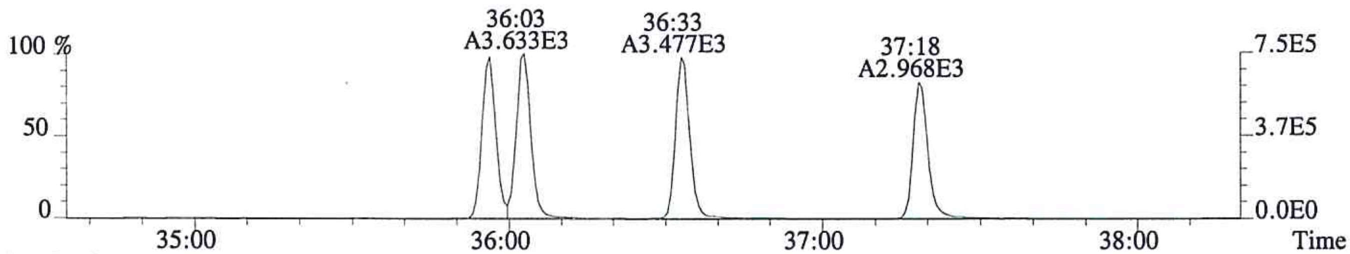


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

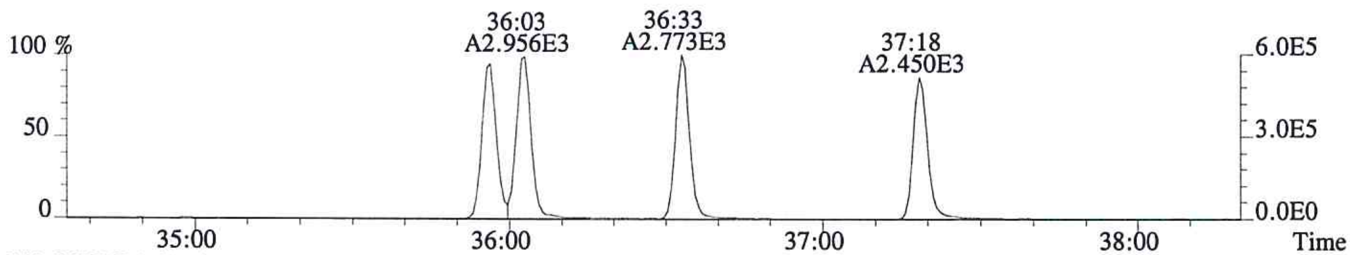


File:P604017 #1-337 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

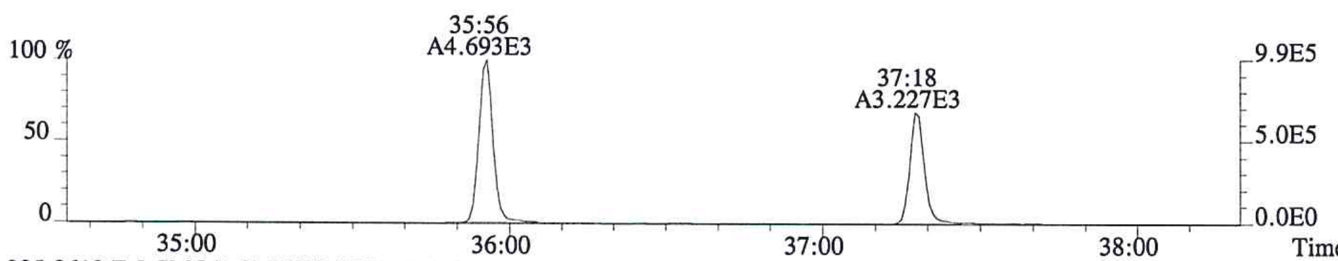
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



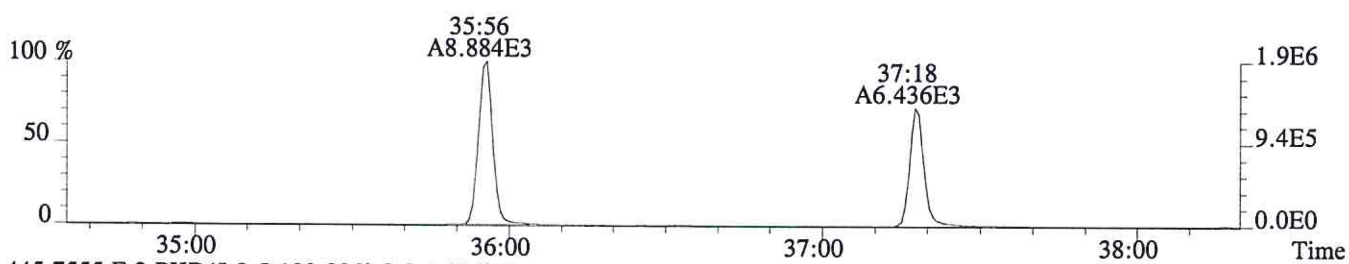
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



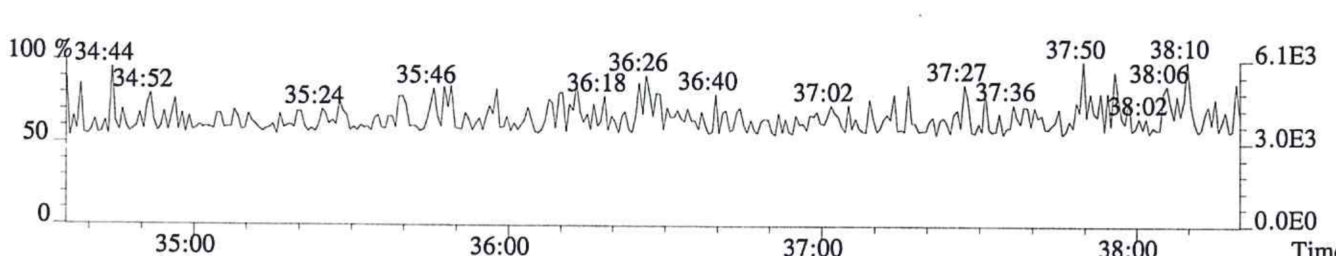
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



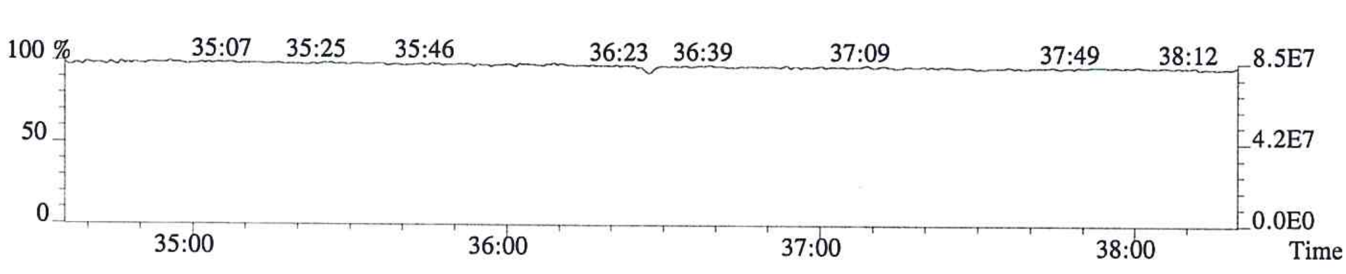
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

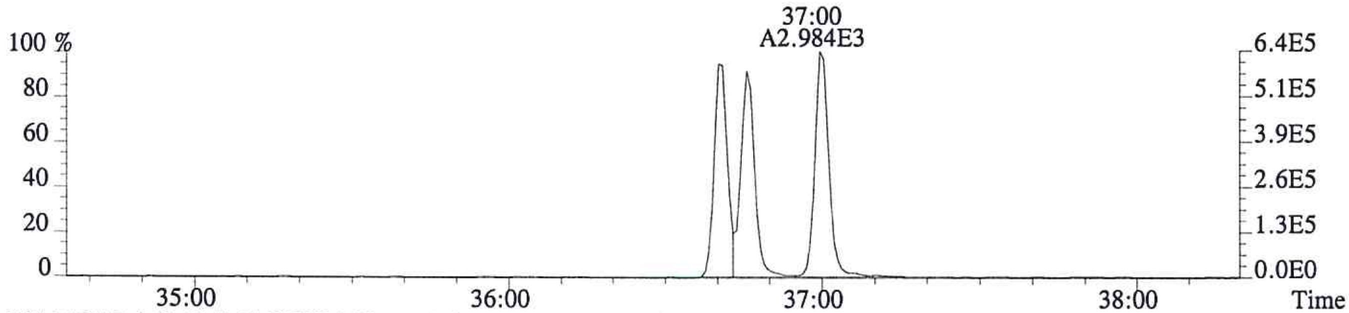


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

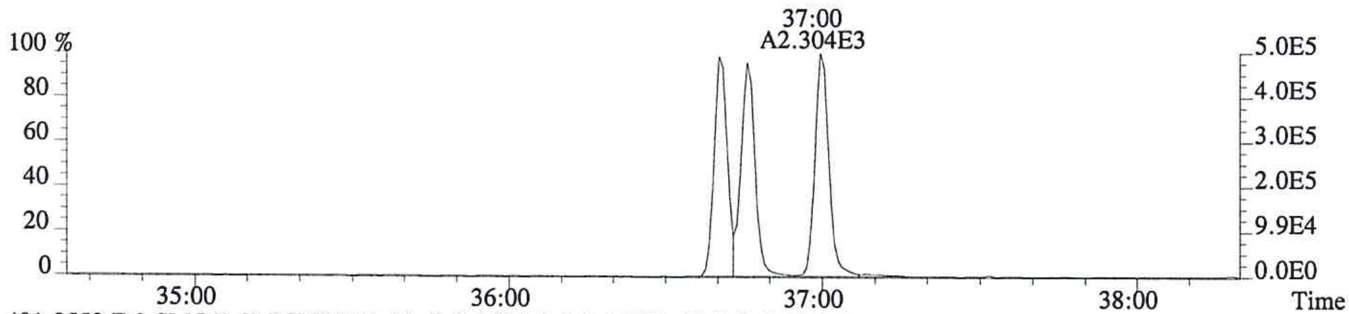


File:P604017 #1-337 Acq:26-JUN-2016 19:48:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

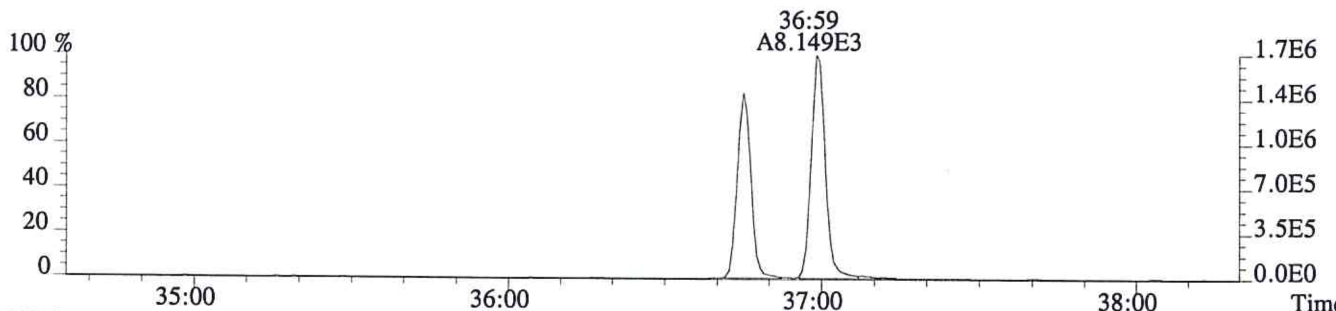
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



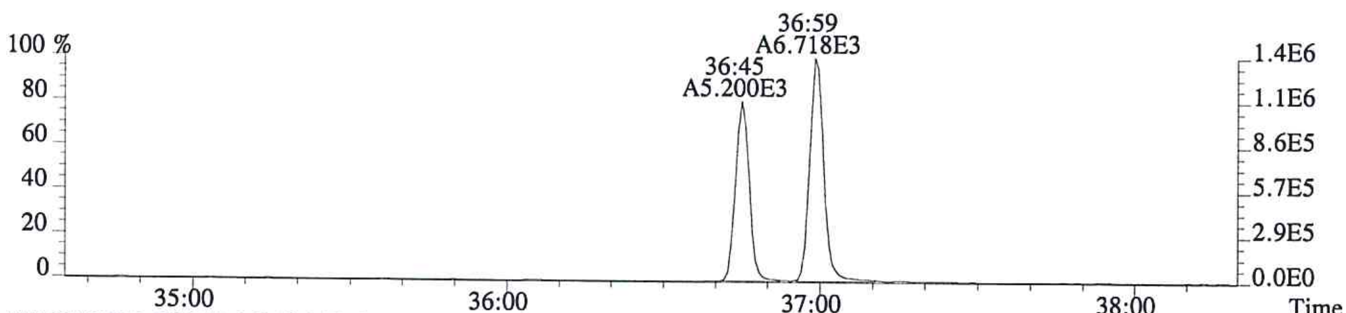
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



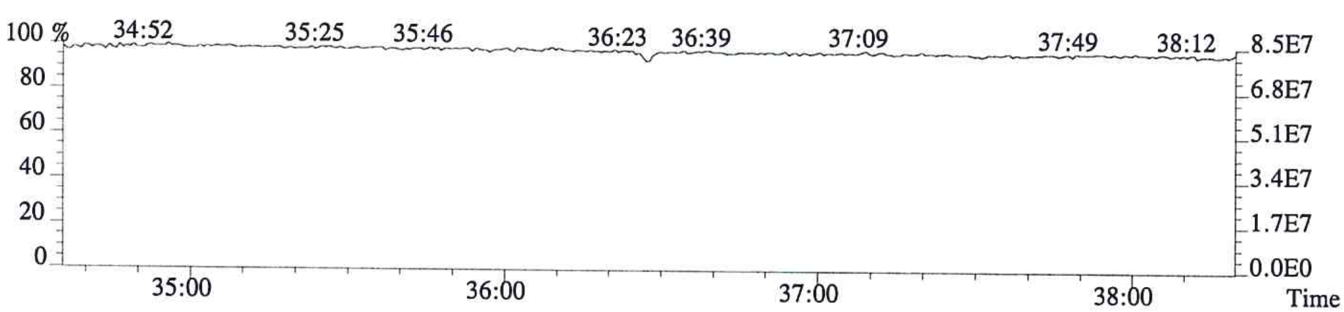
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P603991 Circle one: Beginning / Ending

Date: 06/25/16-06/26/16

SPME

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: Jc

Second QC: LKL

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
BAD INJECTION	EQ1600219-01*	P603992	25-JUN-16	18:59:09
METHOD BLANK	EQ1600219-01	P603993	25-JUN-16	19:48:09
04052016SJPW10	E1600282-006	P603994	25-JUN-16	20:37:12
03162016SJGW1	E1600326-001	P603995	25-JUN-16	21:26:14
04072016SJGW1	E1600326-002	P603996	25-JUN-16	22:15:14
04072016SJGW2	E1600326-003	P603997	25-JUN-16	23:04:16
04072016SJGW10	E1600326-004	P603998	25-JUN-16	23:53:17
04072016SJGW11	E1600326-005	P603999	26-JUN-16	00:42:18
04072016SJGW12	E1600326-006	P604000	26-JUN-16	01:31:21
04072016SJGW13	E1600326-007	P604001	26-JUN-16	02:20:22

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603990	25-JUN-16	17:21:07
173638	CS3	P603991	25-JUN-16	18:10:07
LCS	EQ1600219-02	P604002	26-JUN-16	03:09:23
DLCS	EQ1600219-03	P604003	26-JUN-16	03:58:24

FORM V-HR CDD-3 DLM02.0(5/05)

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160625B.SPL Page 1 of 2
Last Modified: Friday, July 01, 2016 08:52:16 Eastern Daylight Time
Printed: Friday, July 01, 2016 08:52:25 Eastern Daylight Time Page Position (1, 1)

opus4: P603991res ; P603991res2

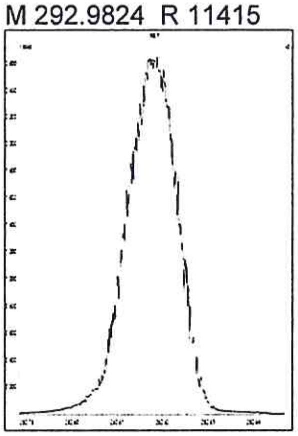
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	17:21	P603990	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 16:28
2		18:10	P603991	173638	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		18:59	P603992	EQ1600219-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		Bad injection
4		19:48	P603993	EQ1600219-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		20:37	P603994	E1600282-006	E1600282-006	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		21:26	P603995	E1600326-001	E1600326-001	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		22:15	P603996	E1600326-002	E1600326-002	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		23:04	P603997	E1600326-003	E1600326-003	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		23:53	P603998	E1600326-004	E1600326-004	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10	06/26/16	00:42	P603999	E1600326-005	E1600326-005	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		01:31	P604000	E1600326-006	E1600326-006	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		02:20	P604001	E1600326-007	E1600326-007	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		03:09	P604002	EQ1600219-02	LCS	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		03:58	P604003	EQ1600219-03	DLCS	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15		04:55	P604004	173638	CS3	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS check 08:21
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

gc 07/01/16

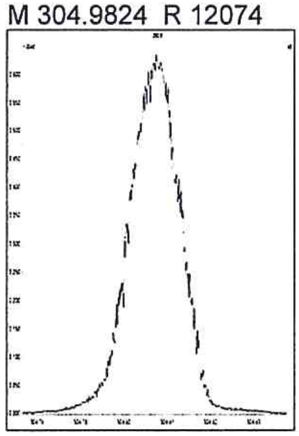
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

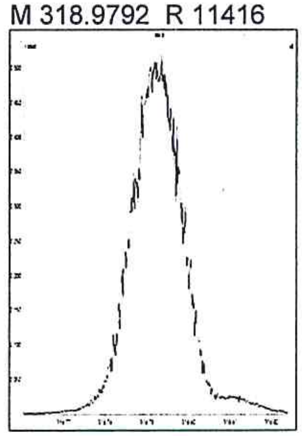
M 292.9824 R 11415



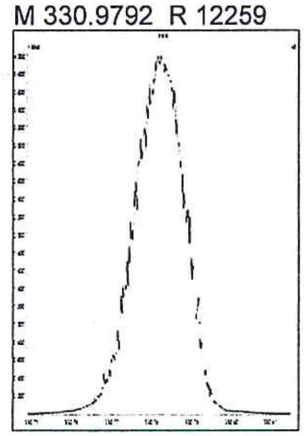
M 304.9824 R 12074



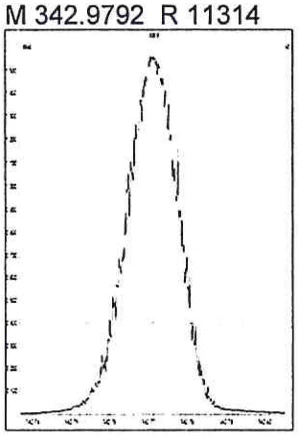
M 318.9792 R 11416



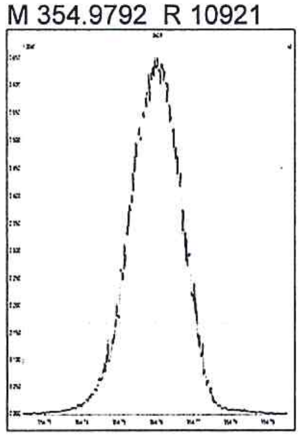
M 330.9792 R 12259



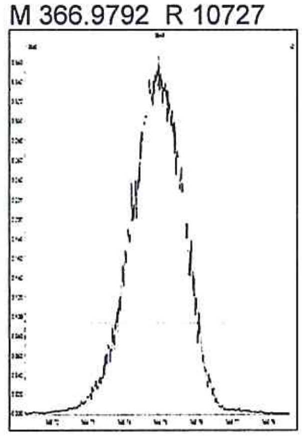
M 342.9792 R 11314



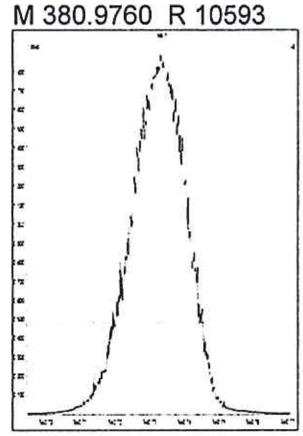
M 354.9792 R 10921



M 366.9792 R 10727



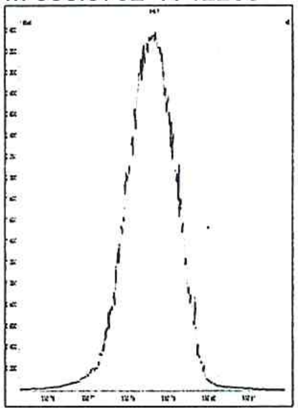
M 380.9760 R 10593



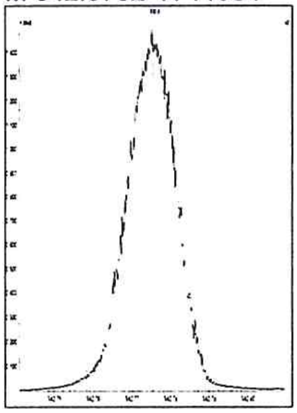
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

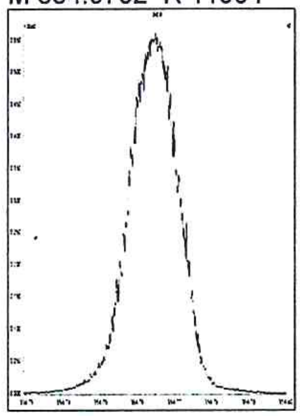
M 330.9792 R 12253



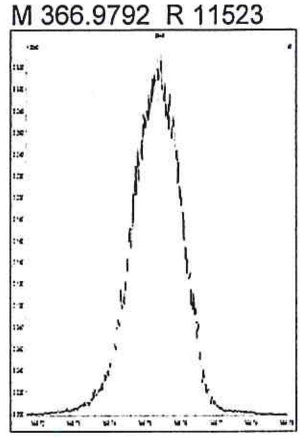
M 342.9792 R 11684



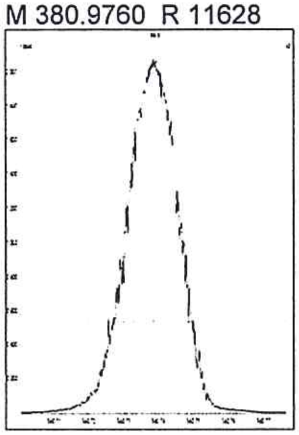
M 354.9792 R 11904



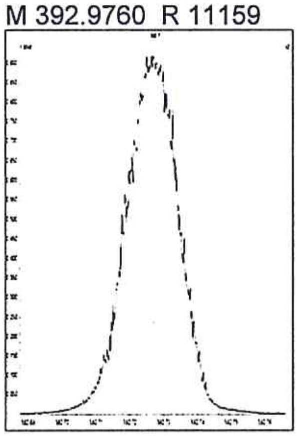
M 366.9792 R 11523



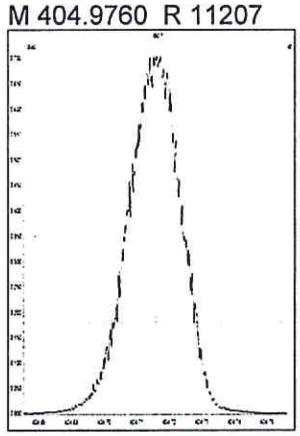
M 380.9760 R 11628



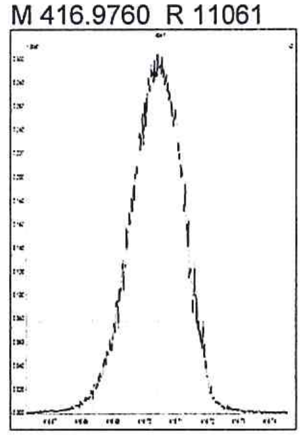
M 392.9760 R 11159



M 404.9760 R 11207



M 416.9760 R 11061

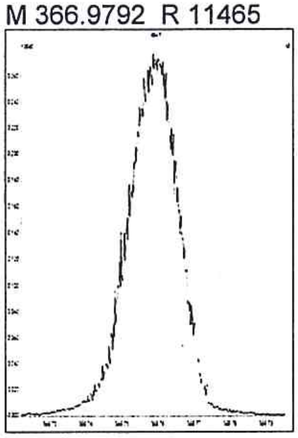


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

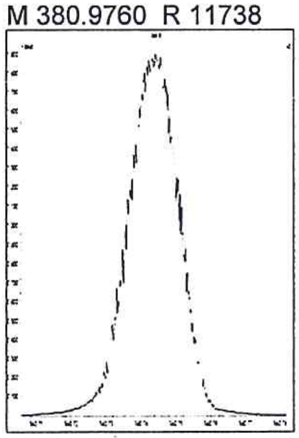
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

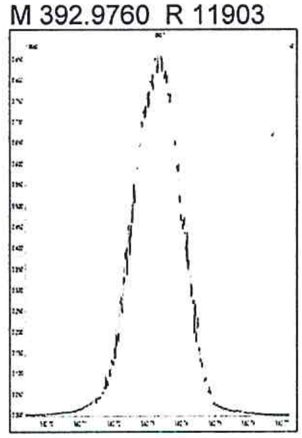
M 366.9792 R 11465



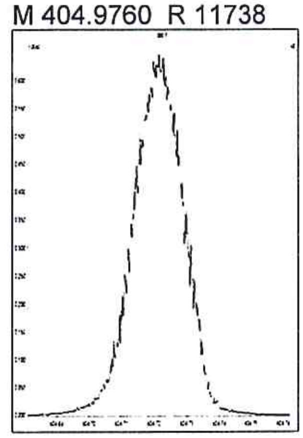
M 380.9760 R 11738



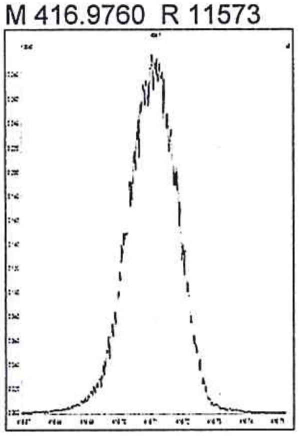
M 392.9760 R 11903



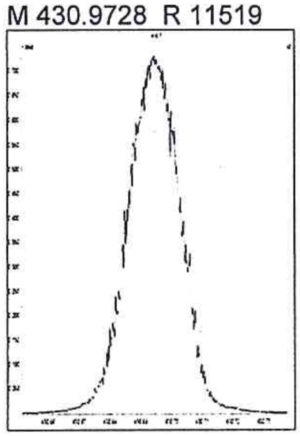
M 404.9760 R 11738



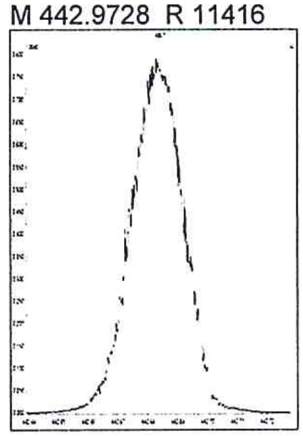
M 416.9760 R 11573



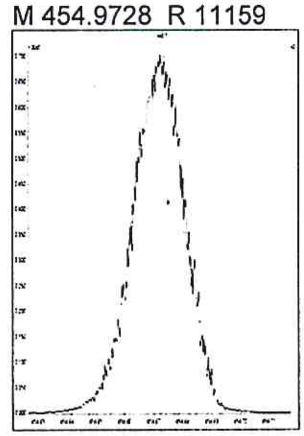
M 430.9728 R 11519



M 442.9728 R 11416



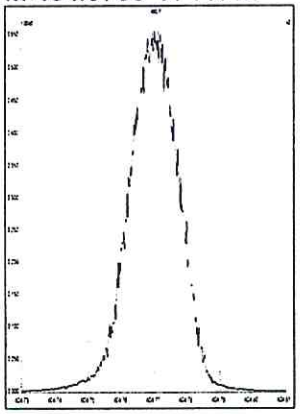
M 454.9728 R 11159



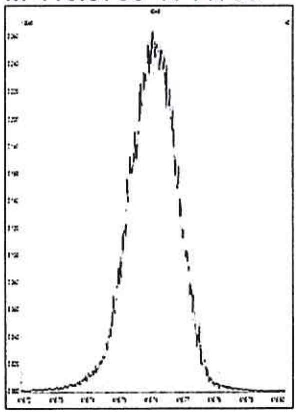
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

M 404.9760 R 11735



M 416.9760 R 11789



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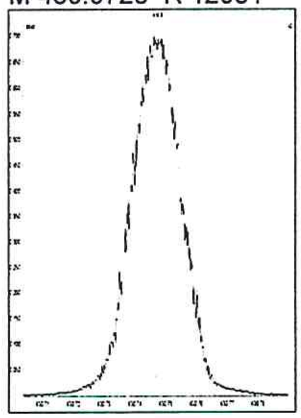
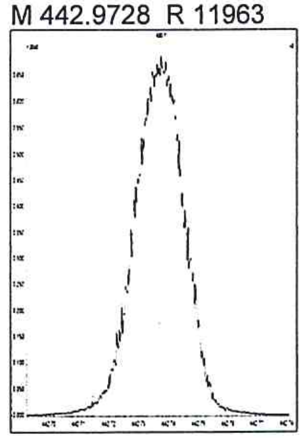
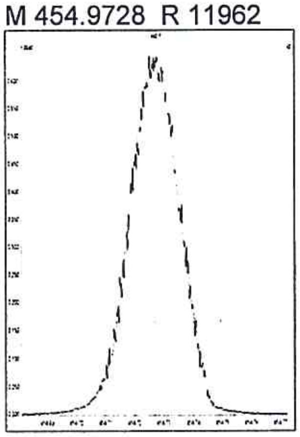


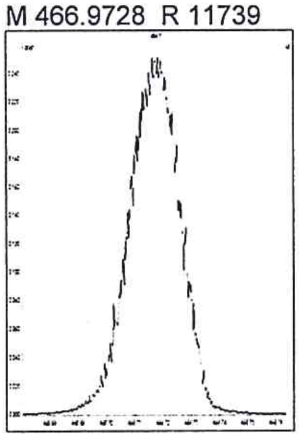
M 442.9728 R 11963



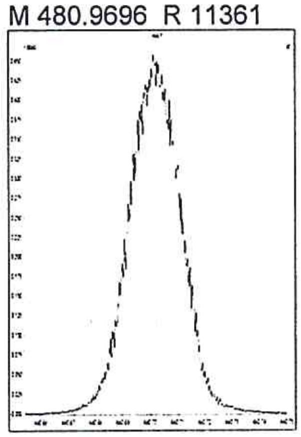
M 454.9728 R 11962



M 466.9728 R 11739



M 480.9696 R 11361

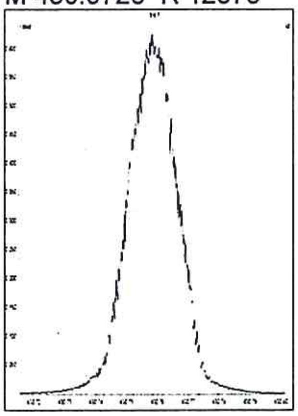


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

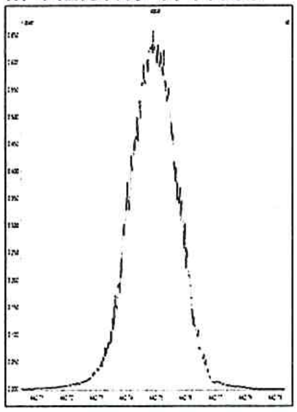
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time

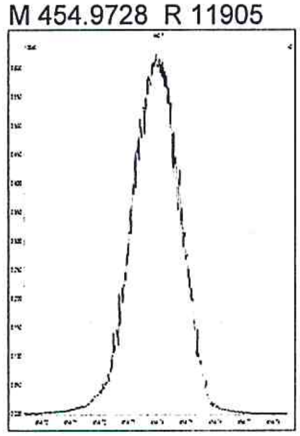
M 430.9728 R 12376



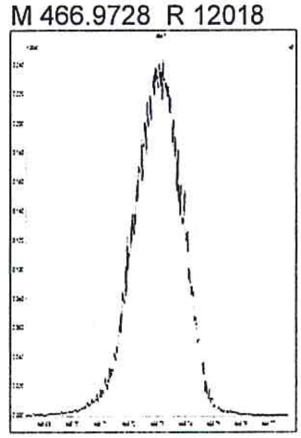
M 442.9728 R 11960



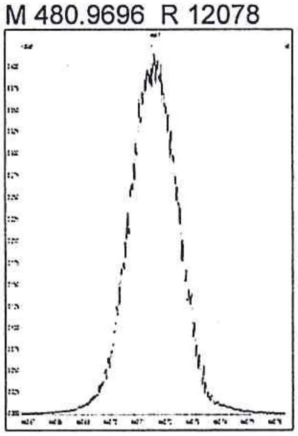
M 454.9728 R 11905



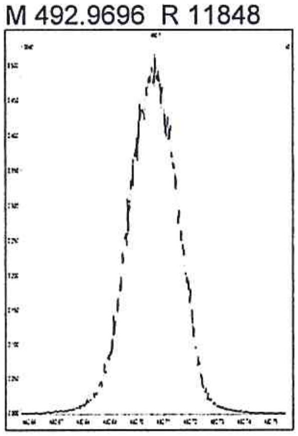
M 466.9728 R 12018



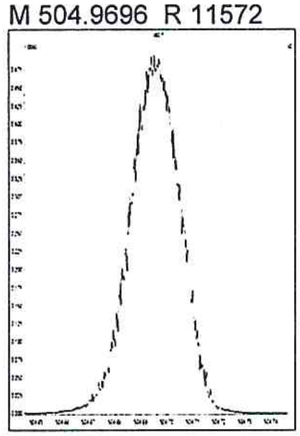
M 480.9696 R 12078



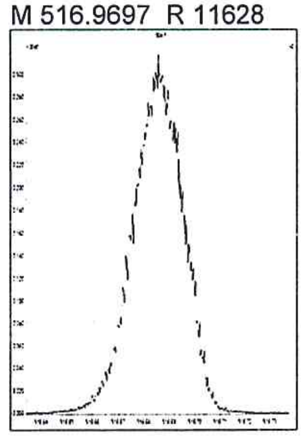
M 492.9696 R 11848



M 504.9696 R 11572



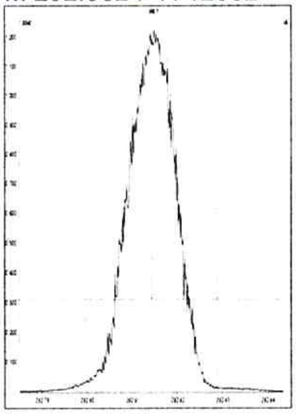
M 516.9697 R 11628



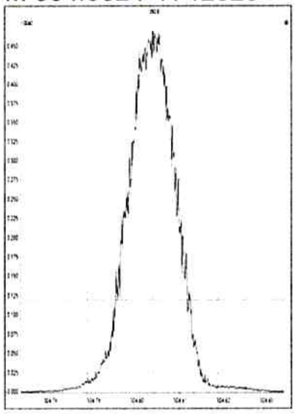
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:21:50 Eastern Daylight Time

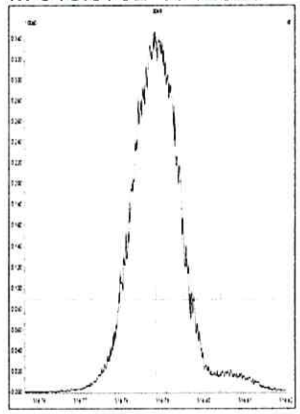
M 292.9824 R 12562



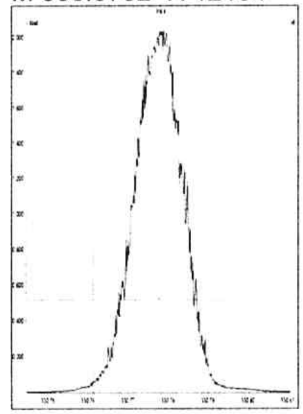
M 304.9824 R 12629



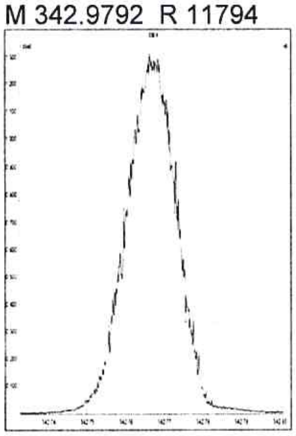
M 318.9792 R 12020



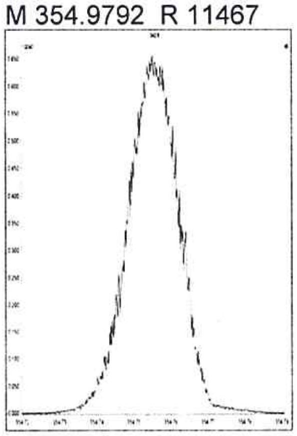
M 330.9792 R 12134



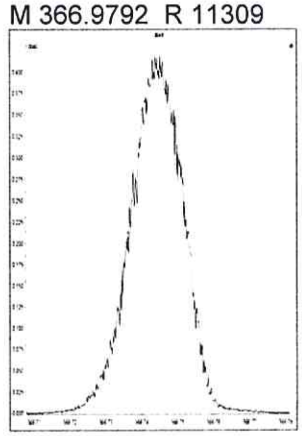
M 342.9792 R 11794



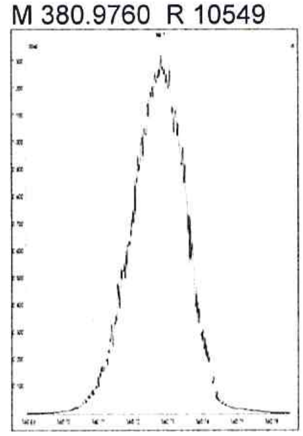
M 354.9792 R 11467



M 366.9792 R 11309



M 380.9760 R 10549

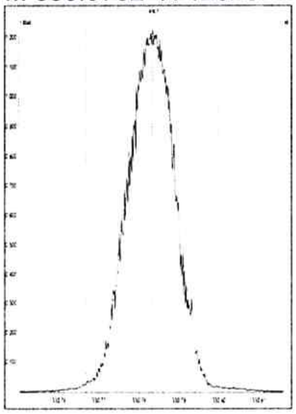


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

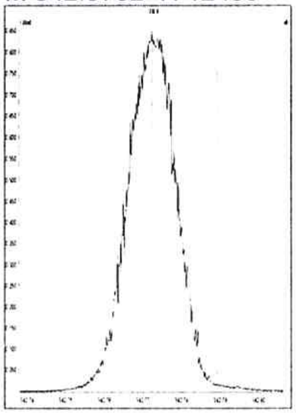
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:23:16 Eastern Daylight Time

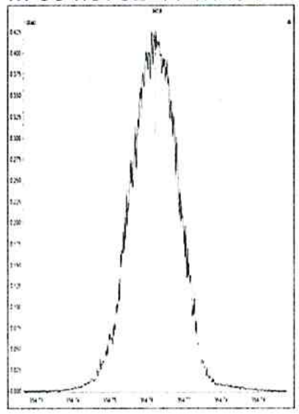
M 330.9792 R 12625



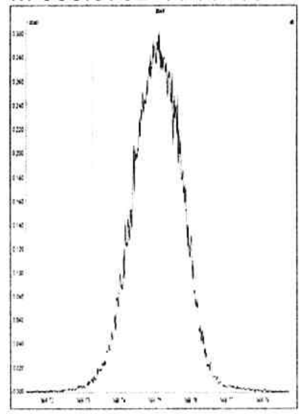
M 342.9792 R 12439



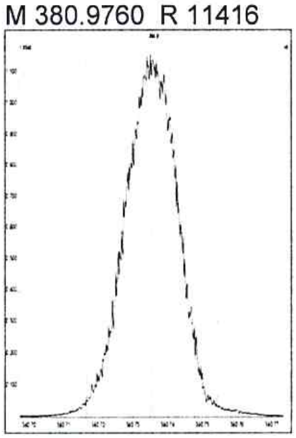
M 354.9792 R 12254



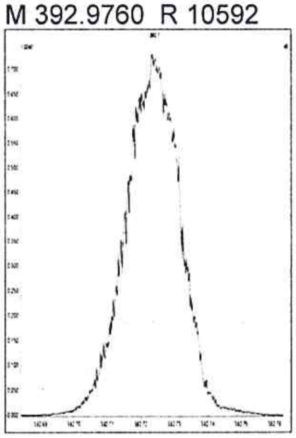
M 366.9792 R 11418



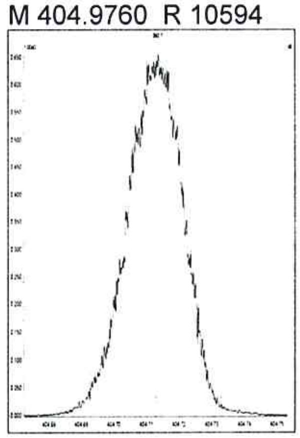
M 380.9760 R 11416



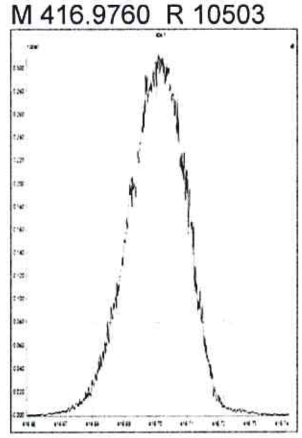
M 392.9760 R 10592



M 404.9760 R 10594



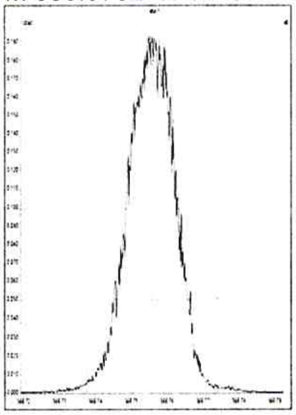
M 416.9760 R 10503



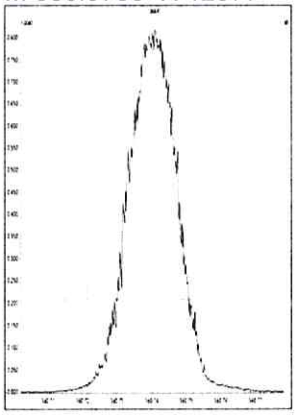
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:24:38 Eastern Daylight Time

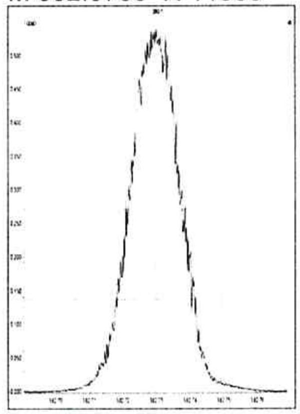
M 366.9792 R 12497



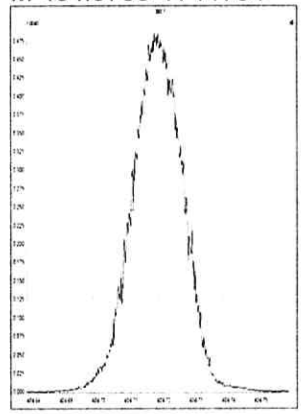
M 380.9760 R 12377



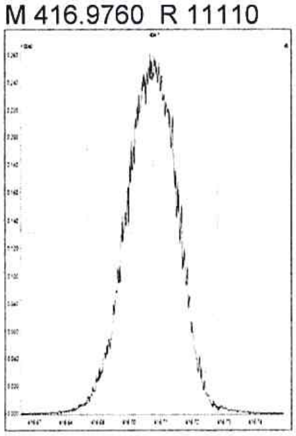
M 392.9760 R 11960



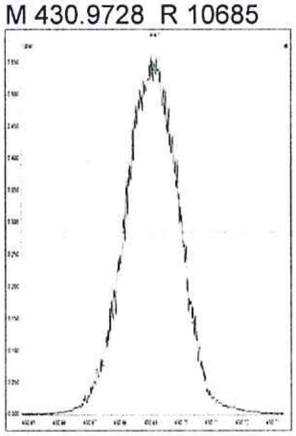
M 404.9760 R 11794



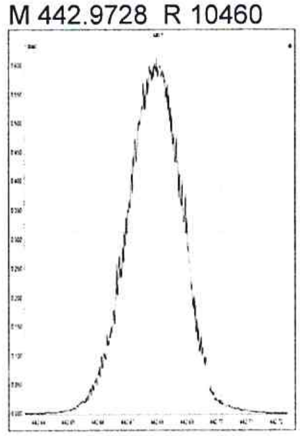
M 416.9760 R 11110



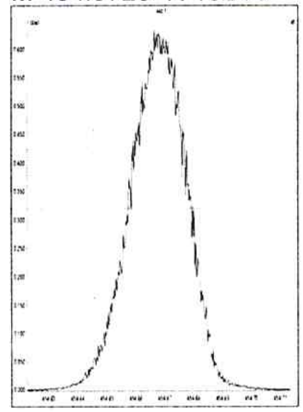
M 430.9728 R 10685



M 442.9728 R 10460



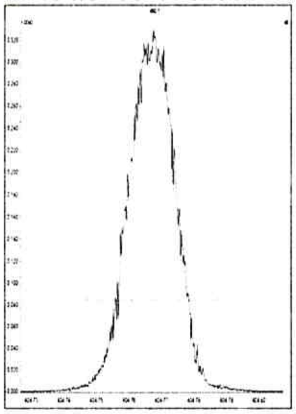
M 454.9728 R 10244



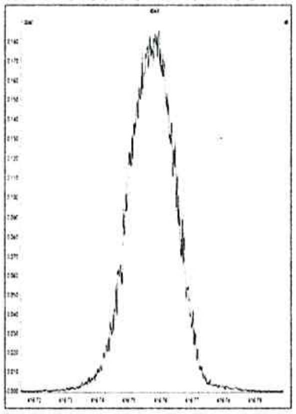
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:25:52 Eastern Daylight Time

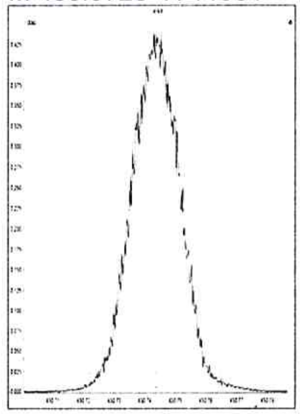
M 404.9760 R 12693



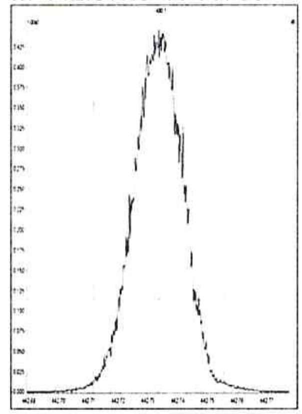
M 416.9760 R 12438



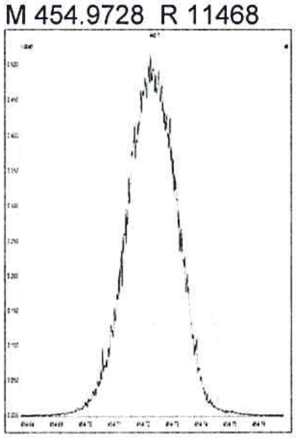
M 430.9728 R 11961



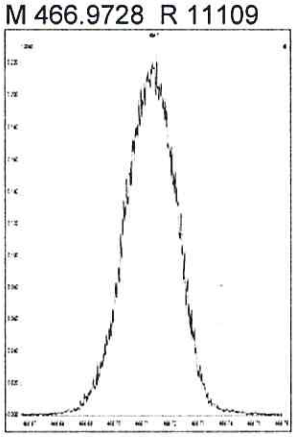
M 442.9728 R 11739



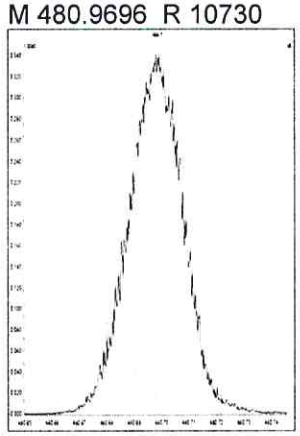
M 454.9728 R 11468



M 466.9728 R 11109



M 480.9696 R 10730

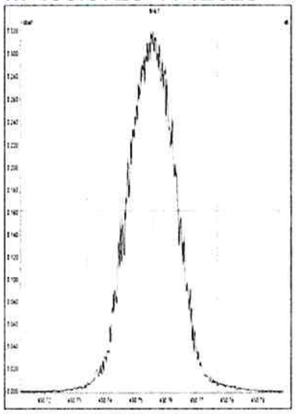


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

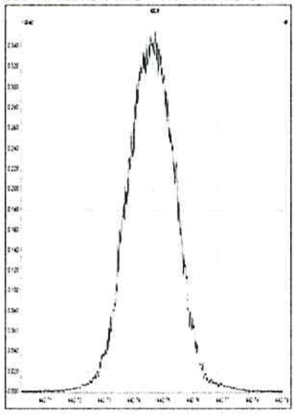
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:27:02 Eastern Daylight Time

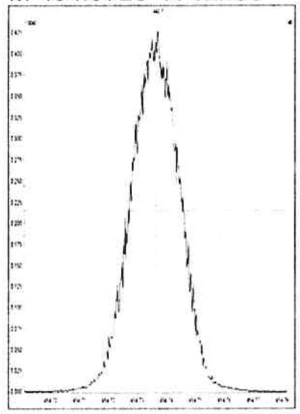
M 430.9728 R 12820



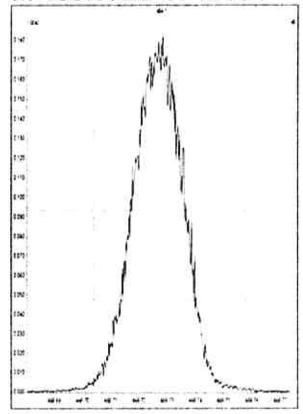
M 442.9728 R 12498



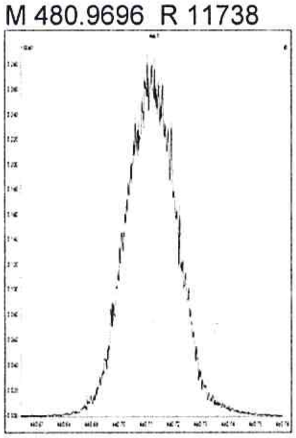
M 454.9728 R 12255



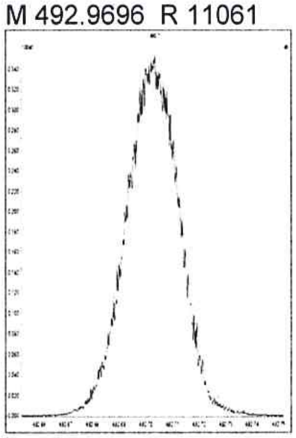
M 466.9728 R 12194



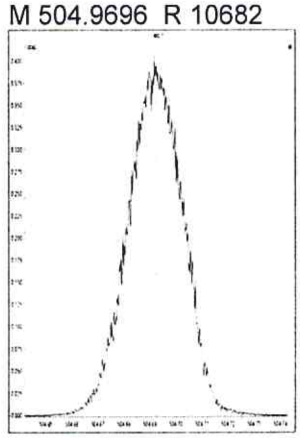
M 480.9696 R 11738



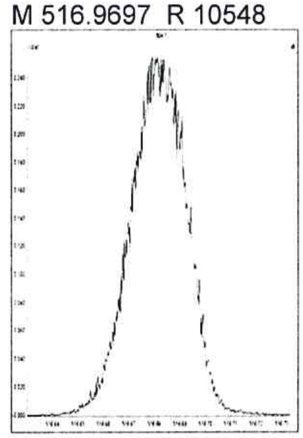
M 492.9696 R 11061



M 504.9696 R 10682



M 516.9697 R 10548



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

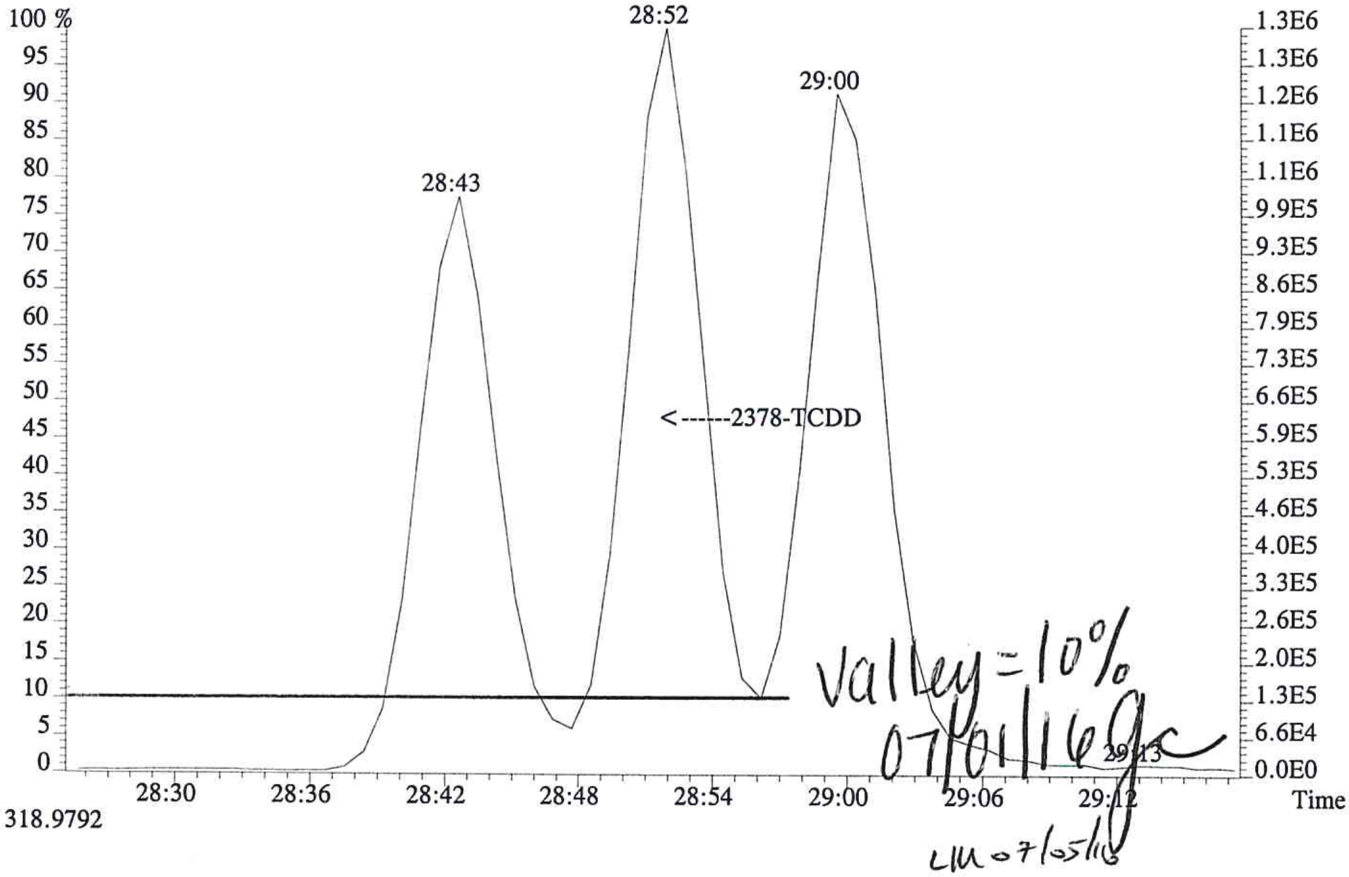
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: ______ SDG No.:
ID: 0.25 (mm) Lab File ID: P603990
Date Analyzed: 25-JUN-2016
Time Analyzed: 17:21:07

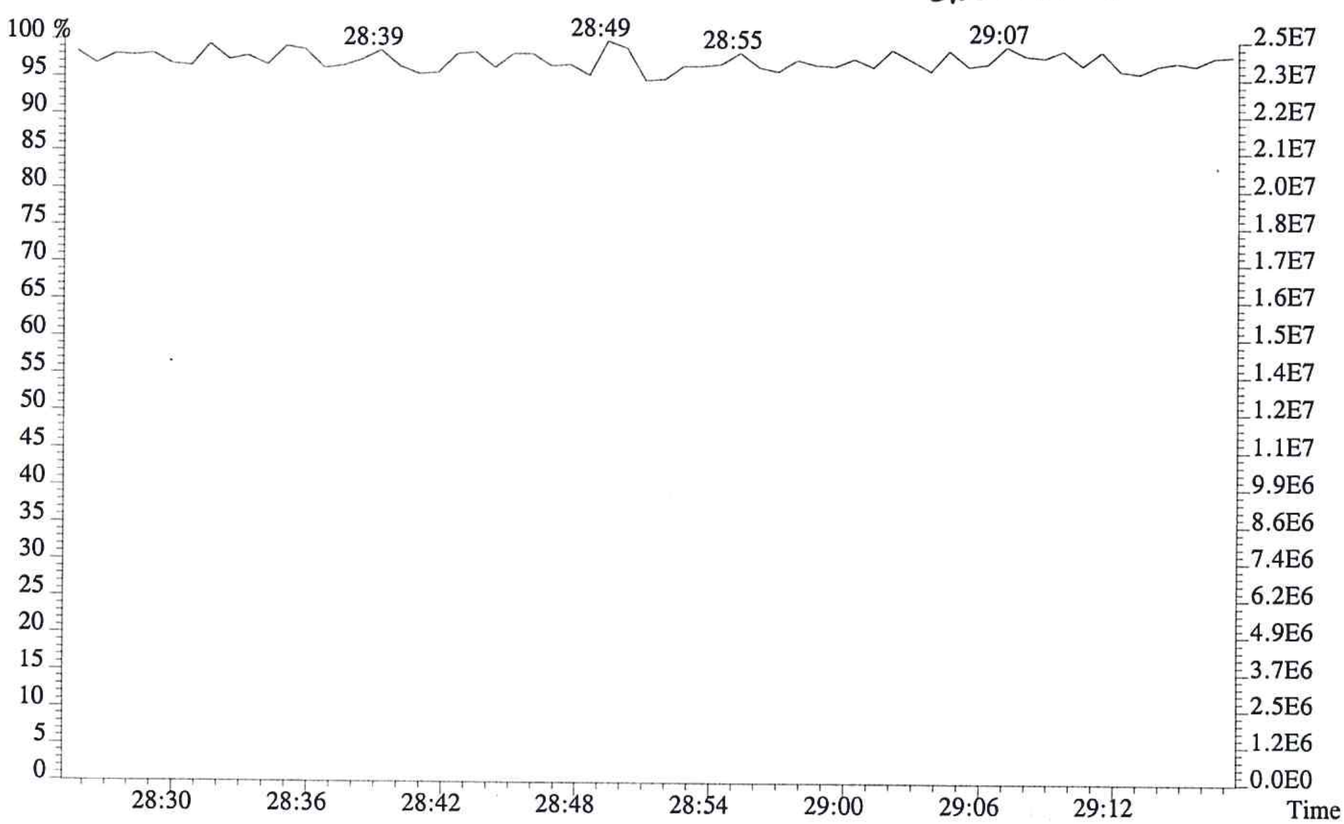
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:40	30:04
TCDD	25:32	29:52
PeCDF	29:56	34:13
PeCDD	31:29	33:57
HxCDF	34:50	37:22
HxCDD	35:21	36:56

% Valley 2378-TCDD: 10 %

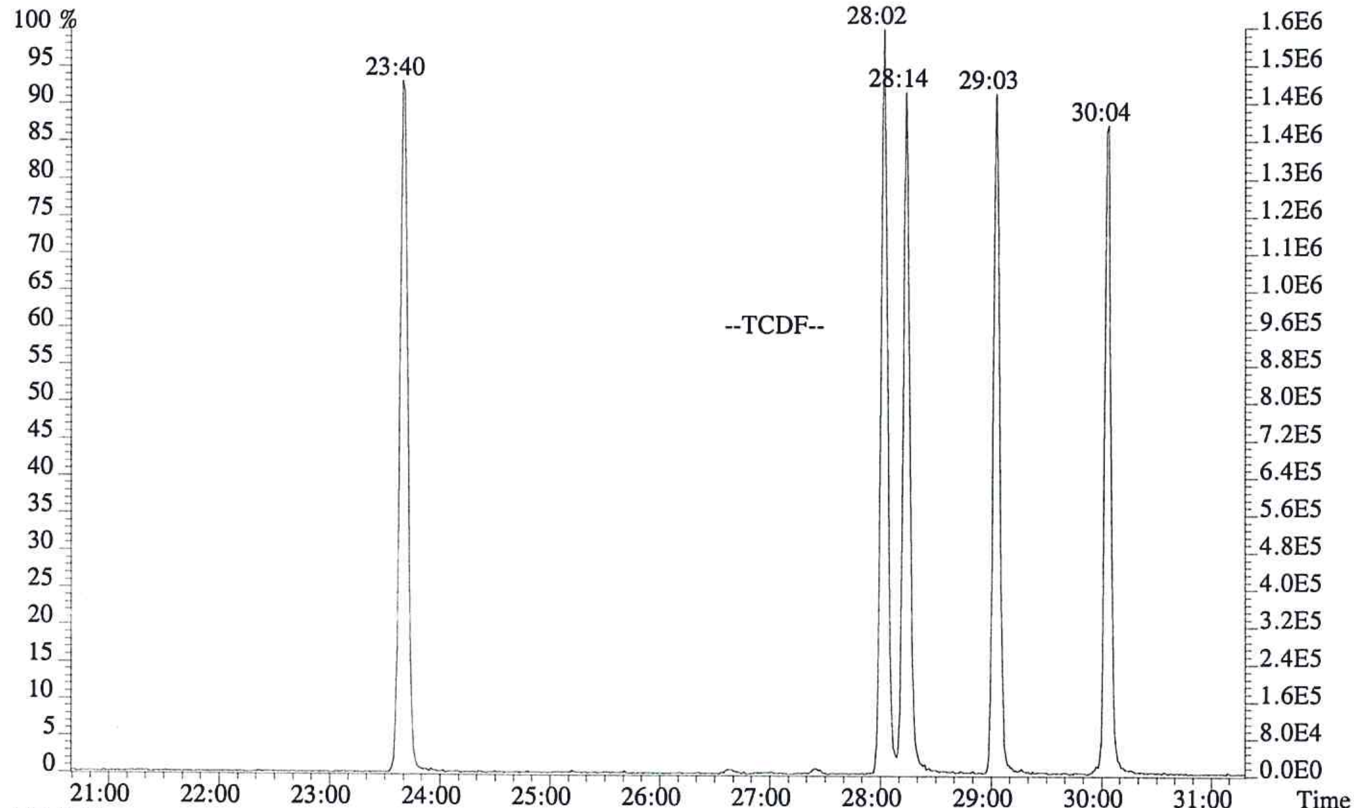
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



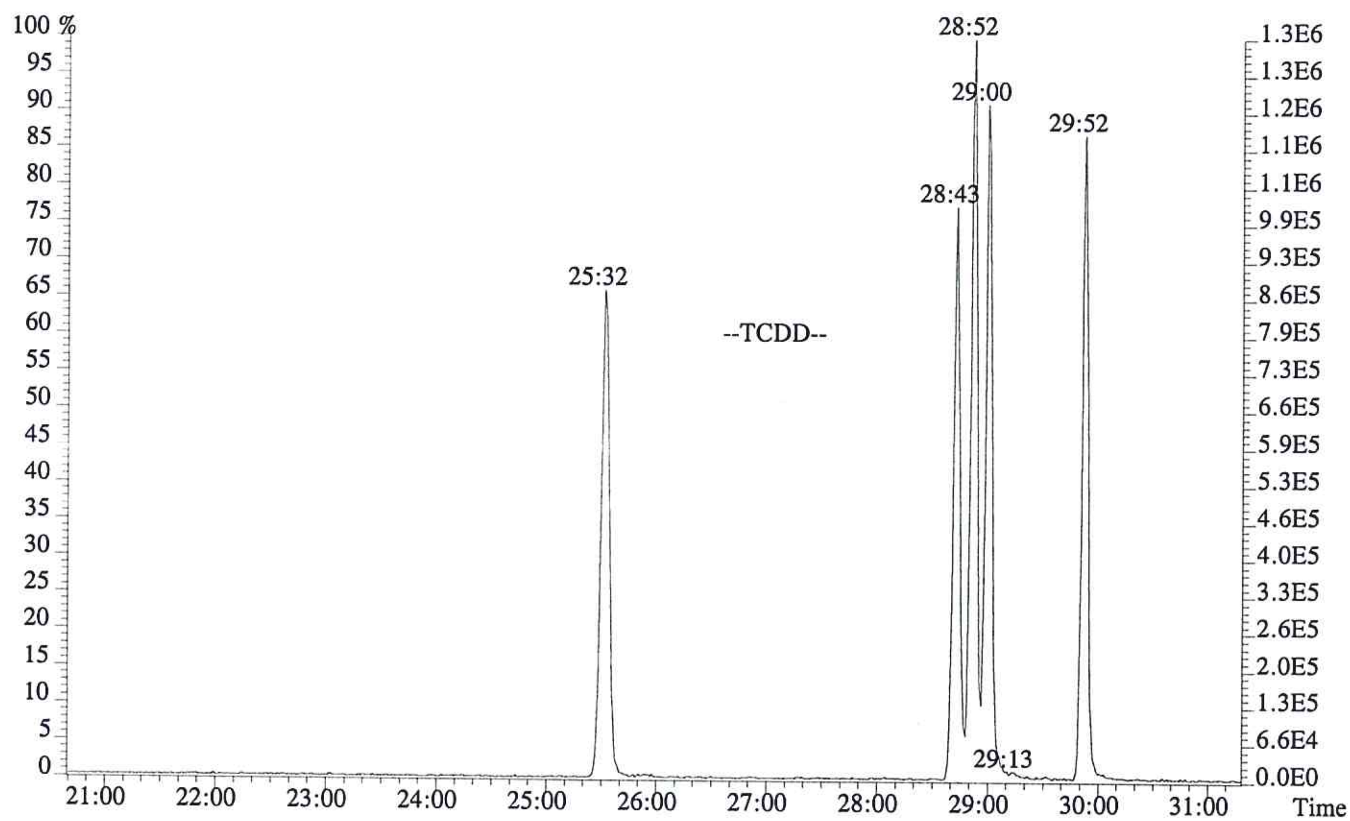
318.9792



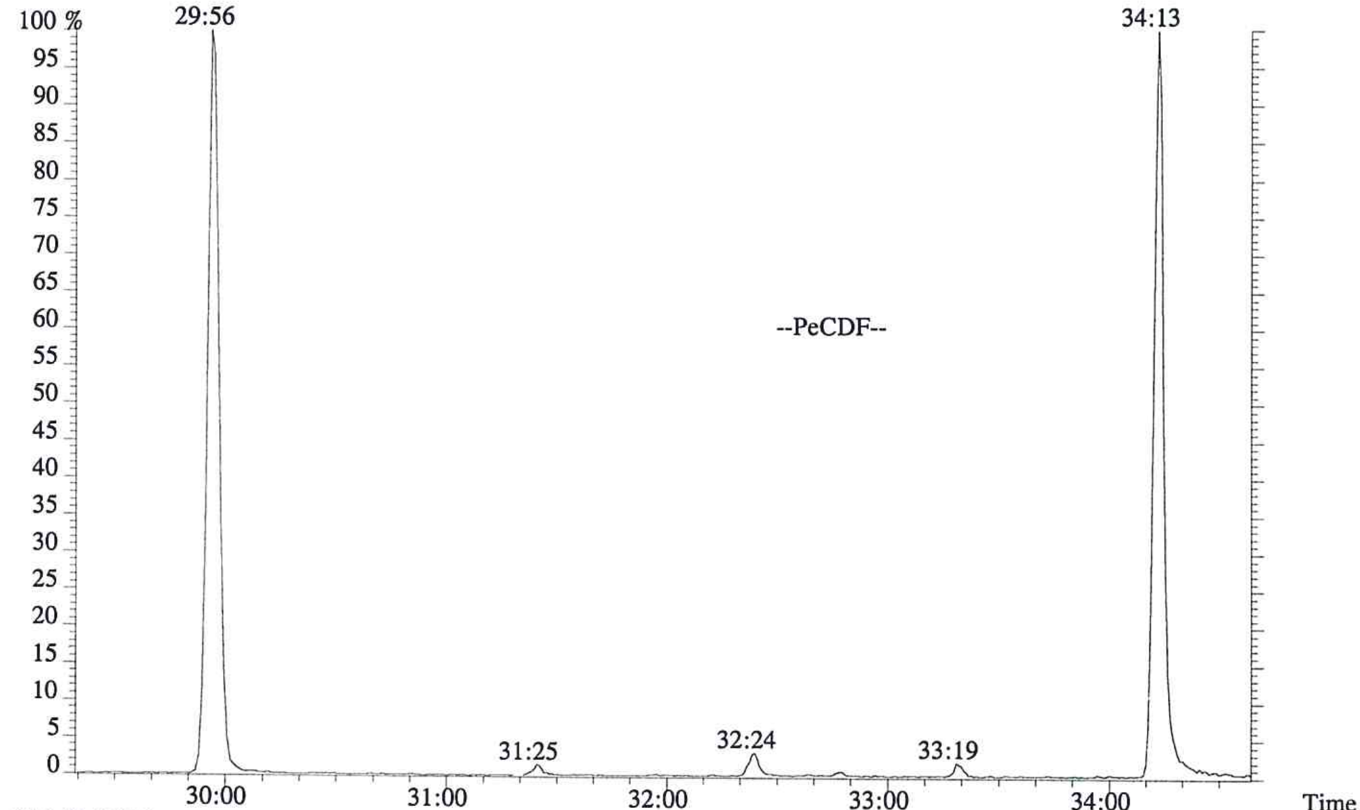
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



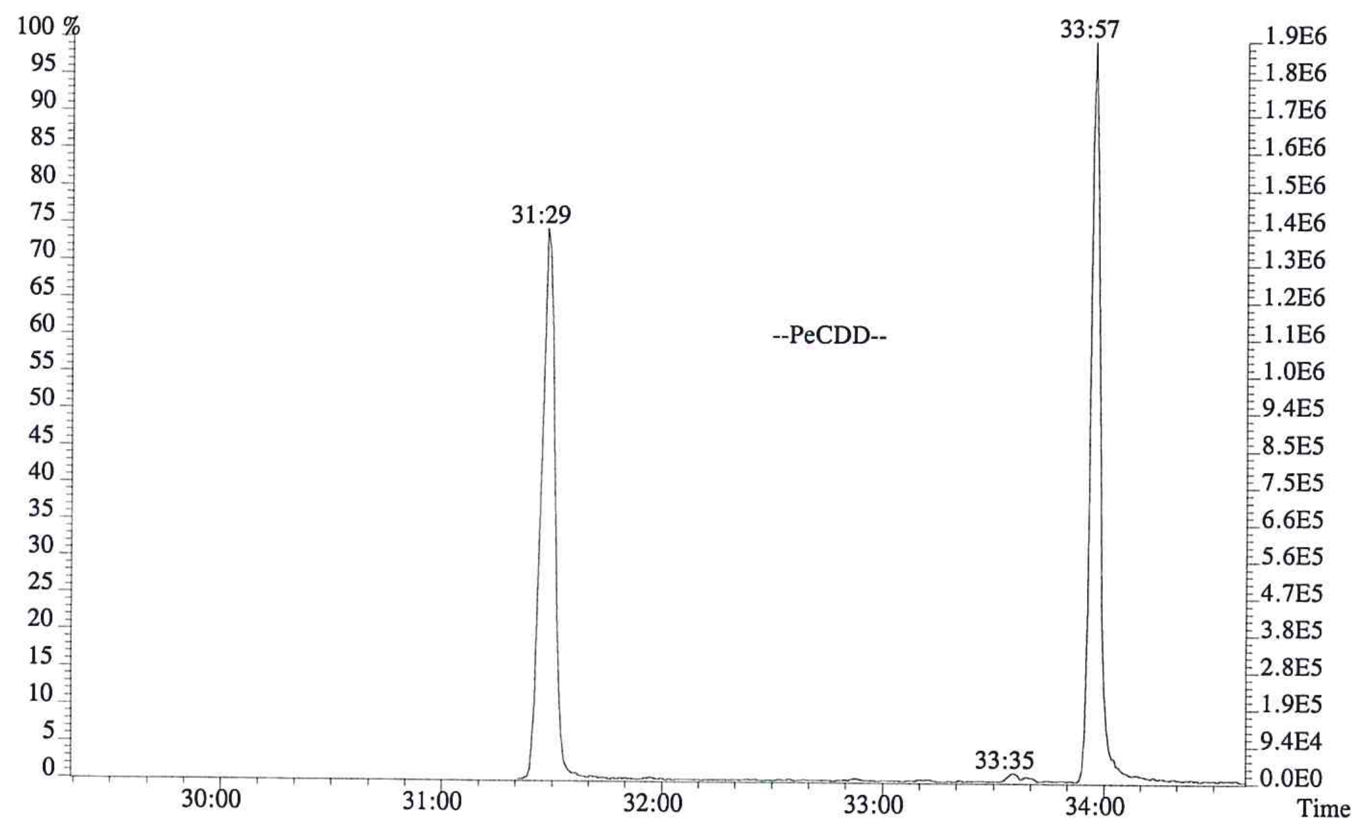
319.8965



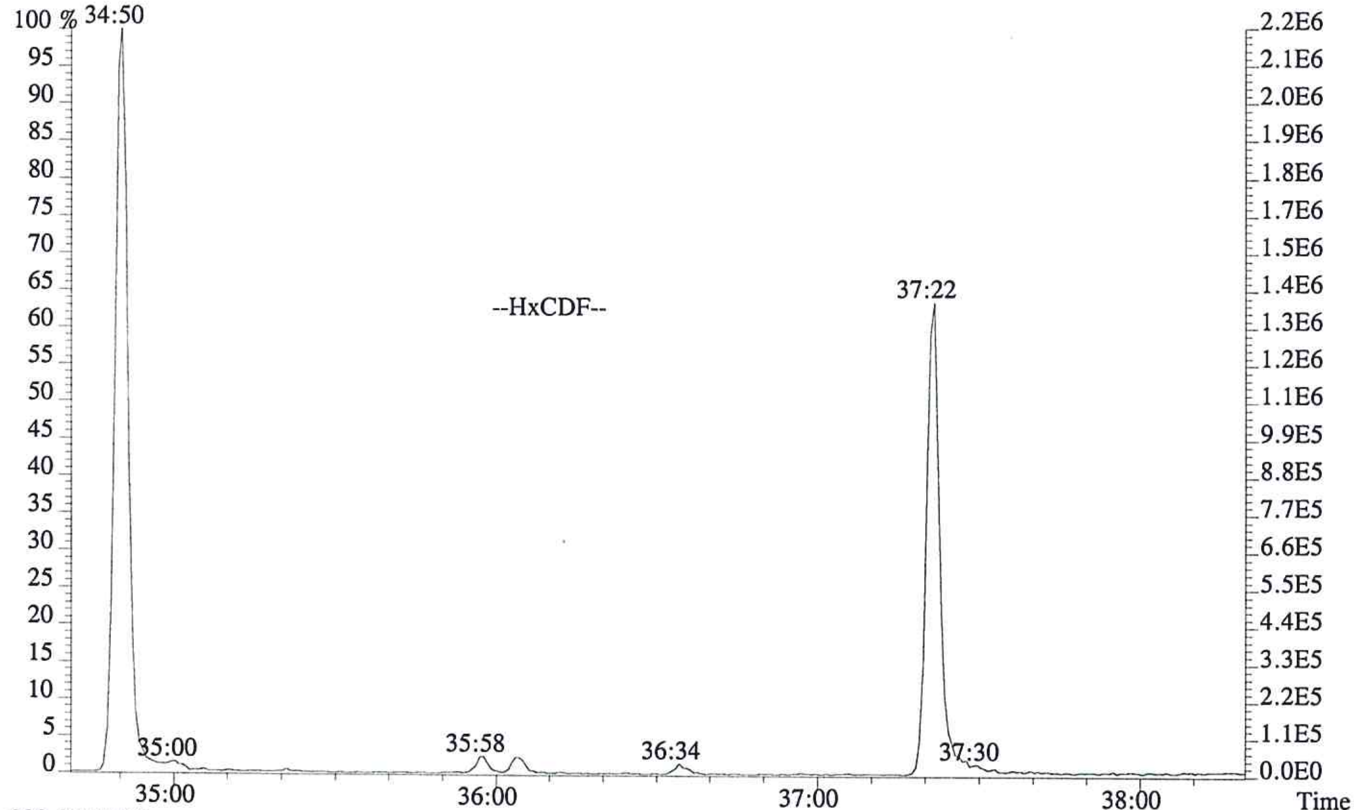
File:P603990 #1-756 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



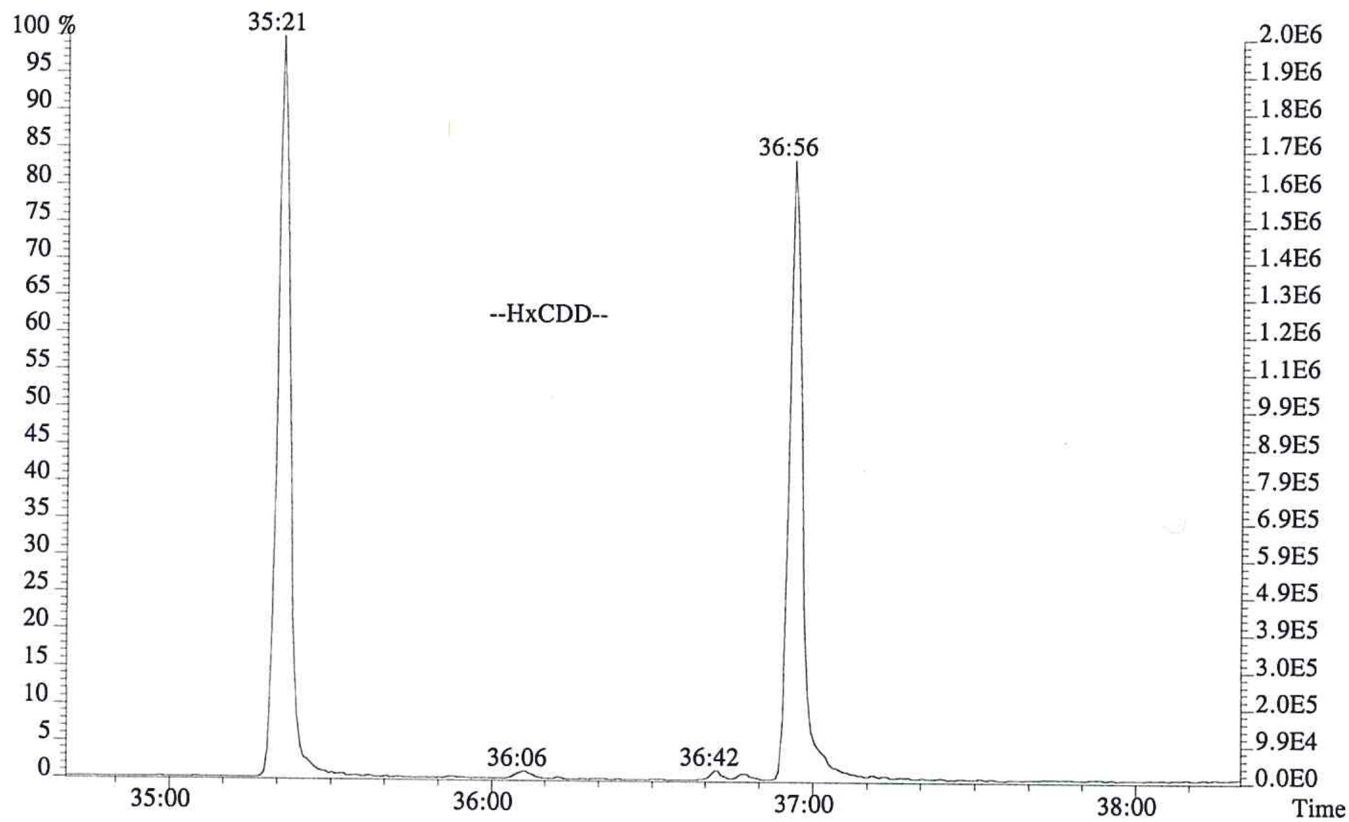
355.8546 F:2



File:P603990 #1-329 Acq:25-JUN-2016 17:21:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	4.7	3.9 - 6.45	-6.5
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	4.9	4.2 - 6.0	-1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	25.0	20.5 - 30.5	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P603991 Analysis Date: 25-JUN-16 Time: 18:10:07

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	51	41 - 60.5	1.9
13C-1,2,3,4-TCDF	M/M+2	0.78	0.65-0.89	40	35.5-70	-20.5
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	49	35.5-70	-1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38 - 65	-0.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	50	38.5 - 65	-0.8
13C-1,2,3,7,8,9-HxCDF		0.51	0.43-0.59	50	37 - 67.5	0.5
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	2.4

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	7.317e+03	9.442e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	5.372e+04	3.478e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.621e+03	7.353e+03	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:12	7.876e+04	9.855e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.179e+05	7.427e+04	1.59	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.170e+05	7.340e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.766e+04	7.400e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	6.477e+04	8.258e+04	0.78	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	5.848e+04	7.390e+04	0.79	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	6.187e+04	7.805e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	7.014e+04	5.687e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.354e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #6 Filename P603991 Samp: 1 Inj: 1 Acquired: 25-JUN-16 18:10:07
Processed: 1-JUL-16 11:44:17 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	1.20e+03	1.1e+03	1.69e+06	3.98e+03	4.2e+02
3	2,3,4,7,8-PeCDF	1.05e+07	6.46e+03	1.6e+03	6.82e+06	1.05e+04	6.5e+02
11	2,3,7,8-TCDD	1.05e+06	1.33e+03	7.9e+02	1.39e+06	1.12e+03	1.2e+03
18	13C-2,3,7,8-TCDF	1.41e+07	5.64e+03	2.5e+03	1.78e+07	2.72e+03	6.5e+03
19	13C-1,2,3,7,8-PeCDF	2.17e+07	2.08e+04	1.0e+03	1.36e+07	1.43e+04	9.6e+02
20	13C-2,3,4,7,8-PeCDF	2.28e+07	2.08e+04	1.1e+03	1.43e+07	1.43e+04	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	7.47e+06	1.48e+03	5.0e+03	1.45e+07	2.10e+03	6.9e+03
26	13C-1,2,3,4-TCDF	1.06e+07	5.64e+03	1.9e+03	1.34e+07	2.72e+03	4.9e+03
27	13C-2,3,7,8-TCDD	1.08e+07	8.37e+03	1.3e+03	1.37e+07	3.50e+03	3.9e+03
33	13C-1,2,3,4-TCDD	1.14e+07	8.37e+03	1.4e+03	1.43e+07	3.50e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.40e+07	2.88e+03	4.8e+03	1.12e+07	9.96e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.55e+06	2.30e+03	1.1e+03			

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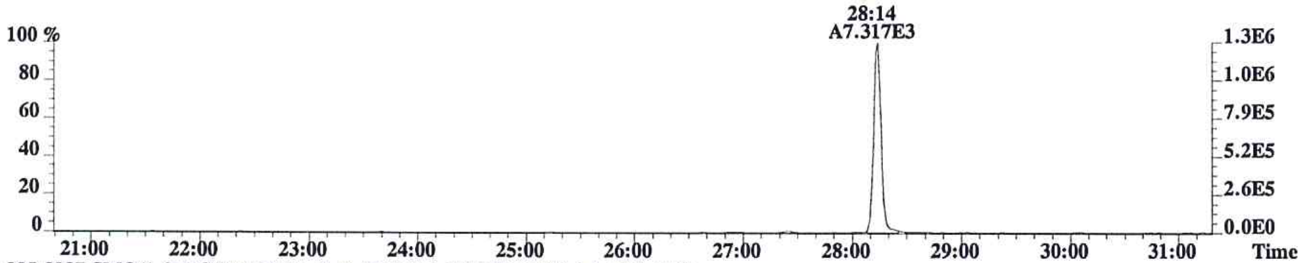
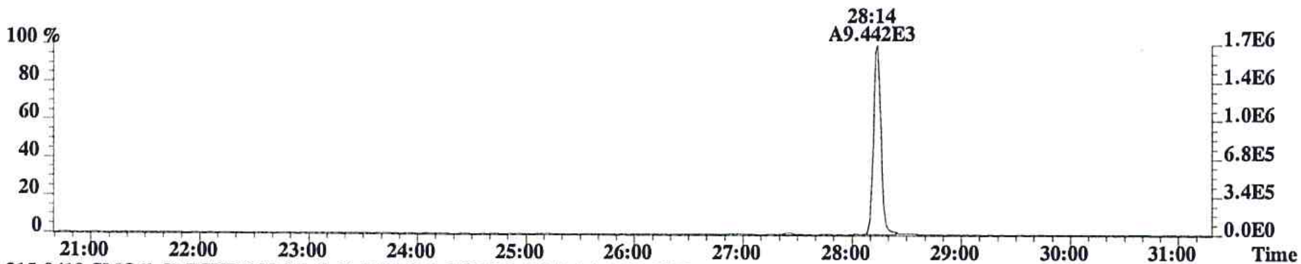
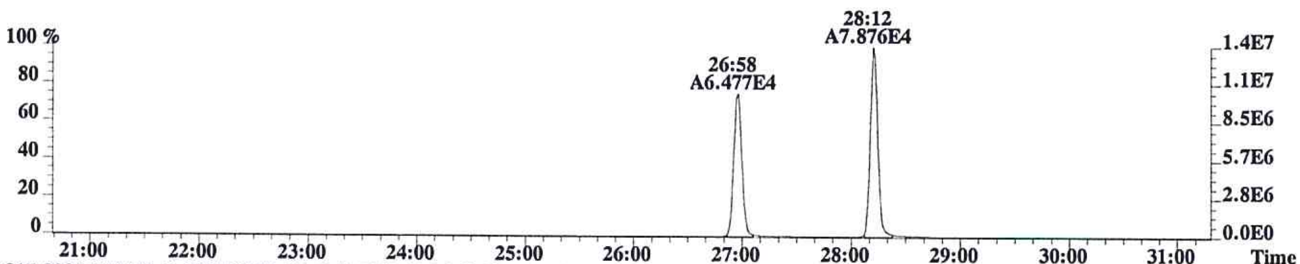
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



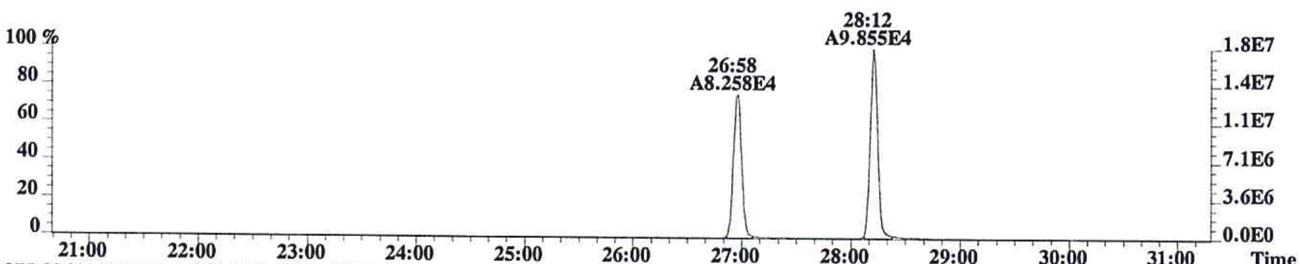
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



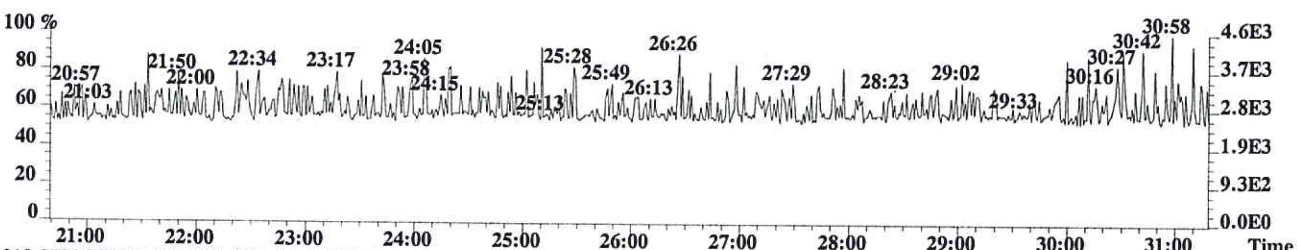
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



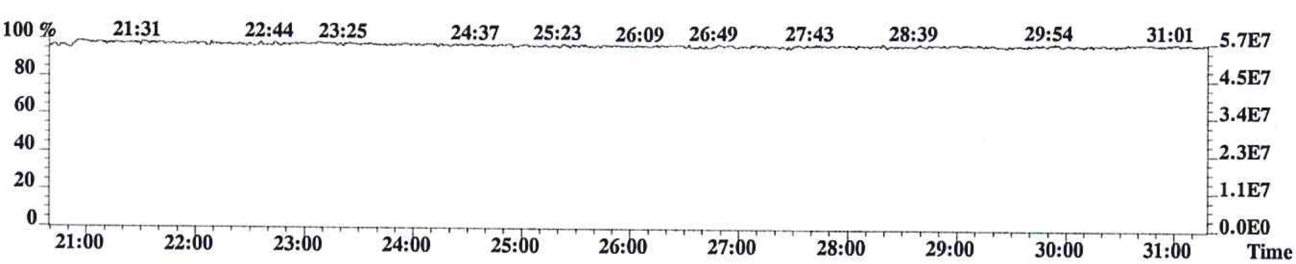
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



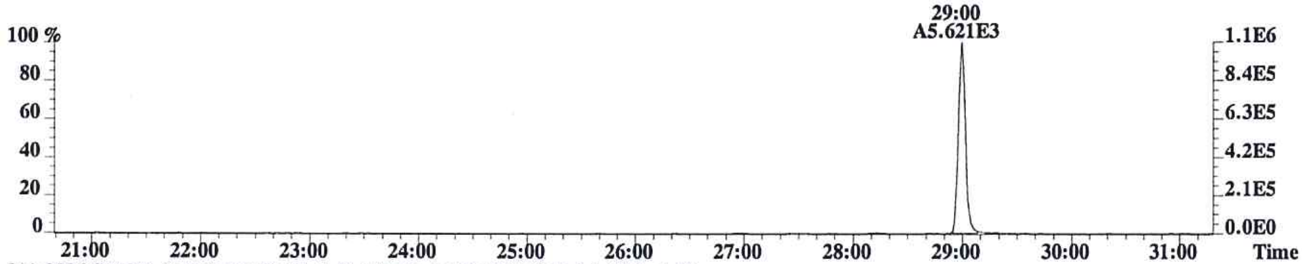
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



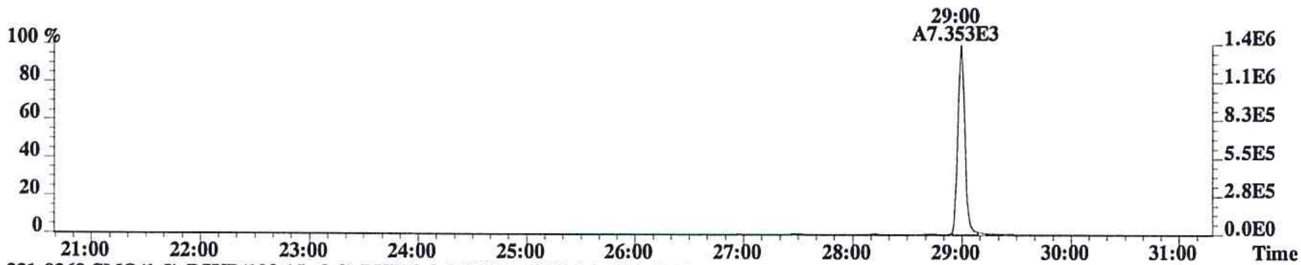
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



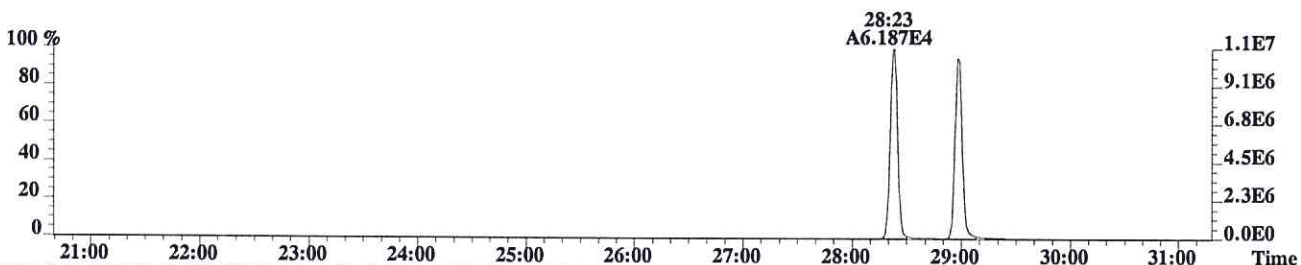
File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



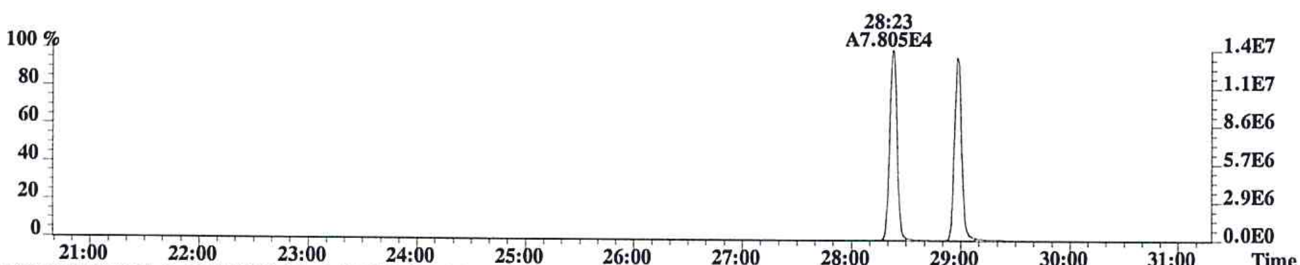
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



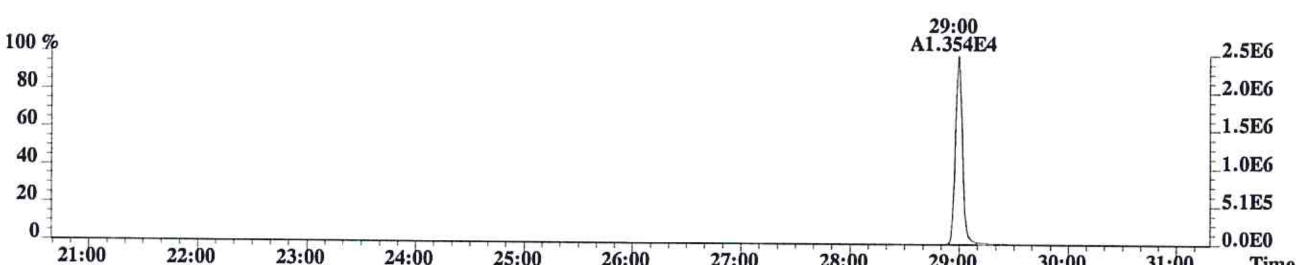
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8368.0,1.00%,F,T)



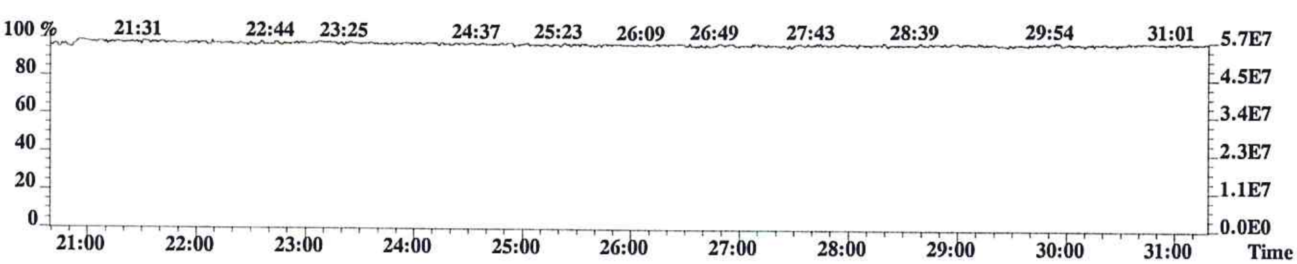
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)

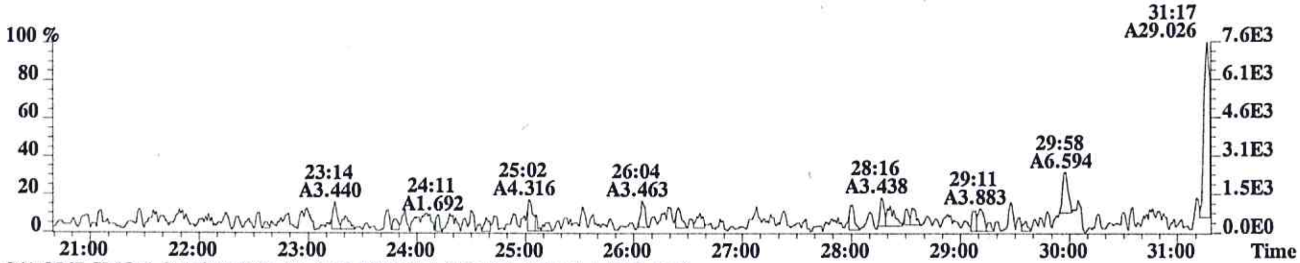


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

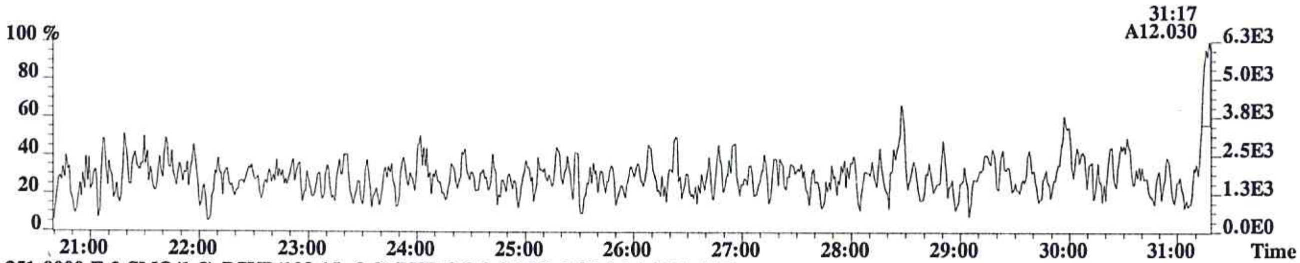


File:P603991 #1-756 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3

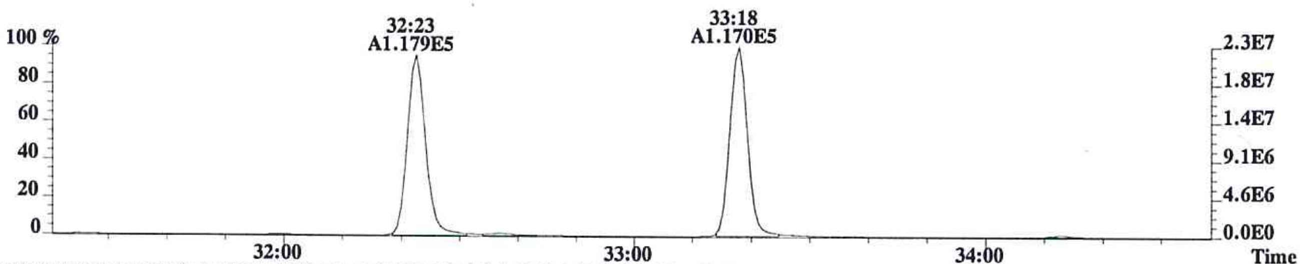
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



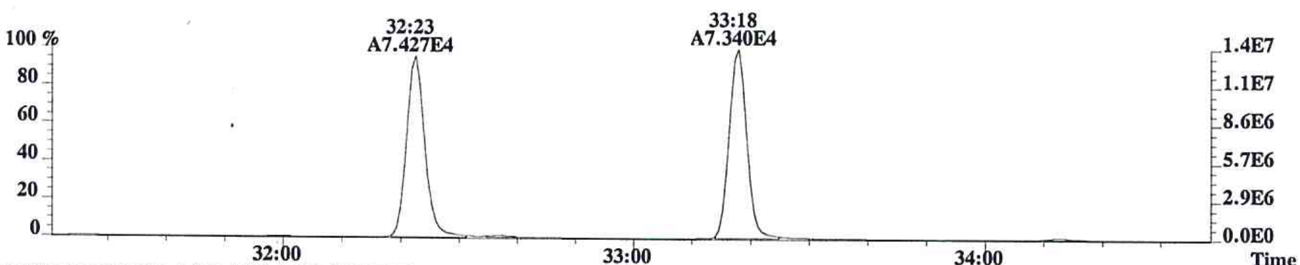
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



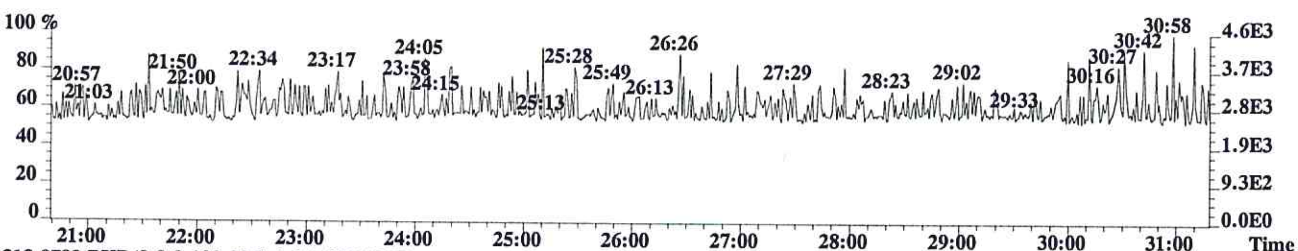
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



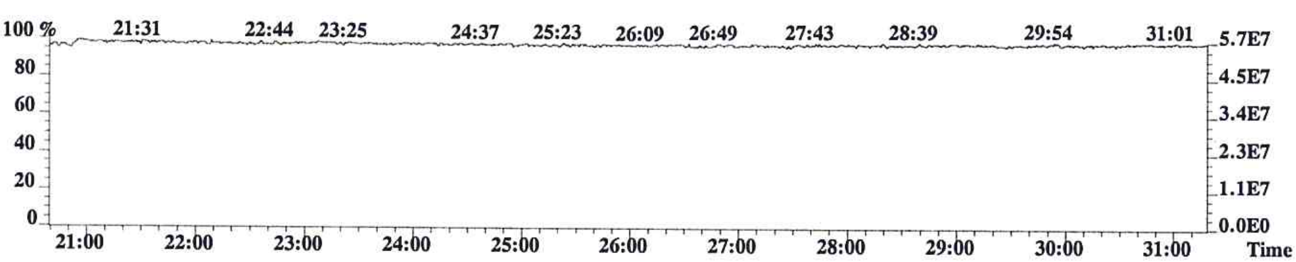
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



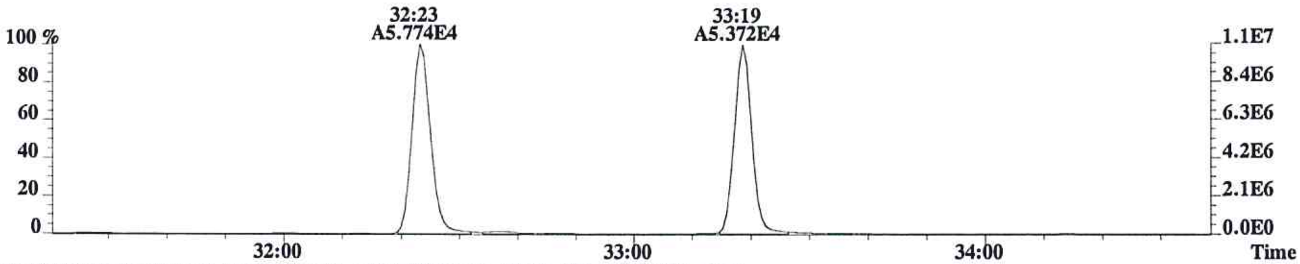
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



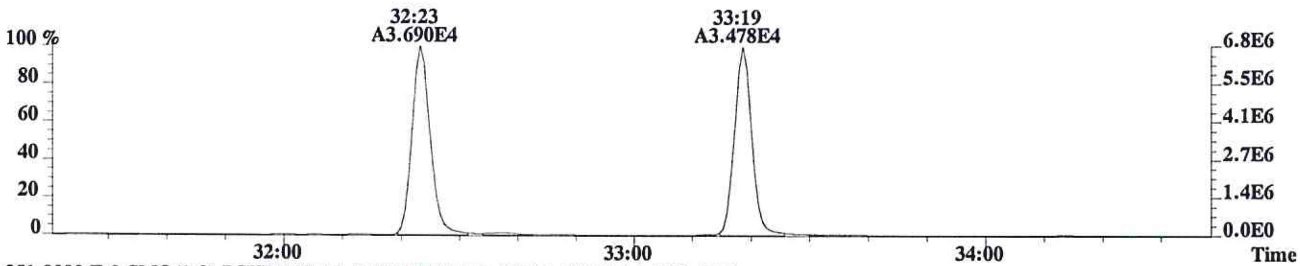
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



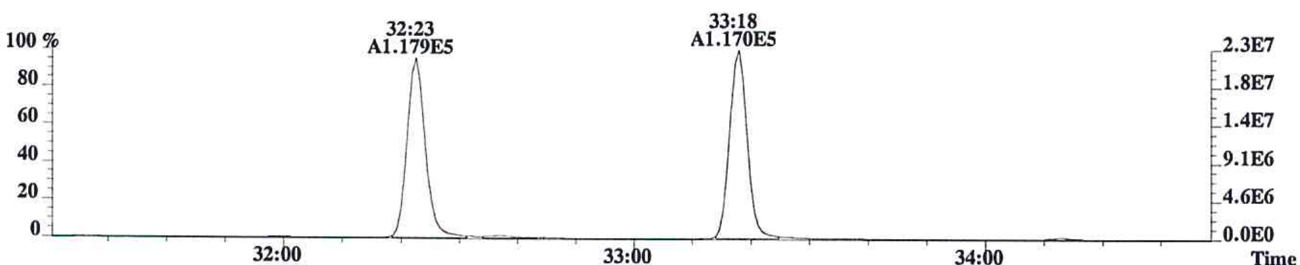
File:P603991 #1-298 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6464.0,1.00%,F,T)



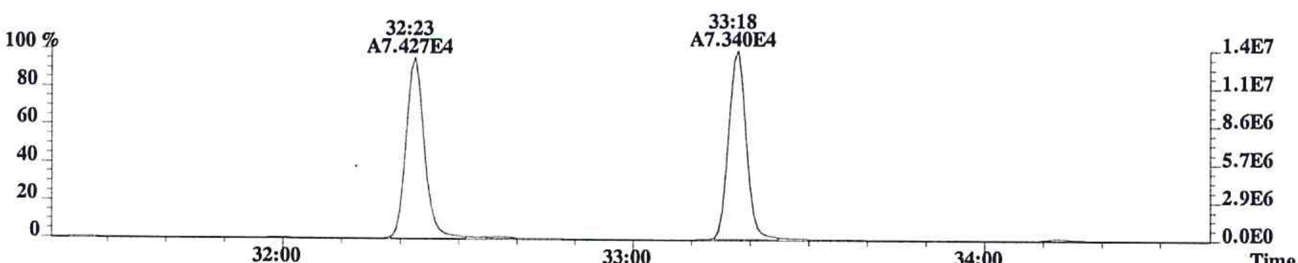
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10468.0,1.00%,F,T)



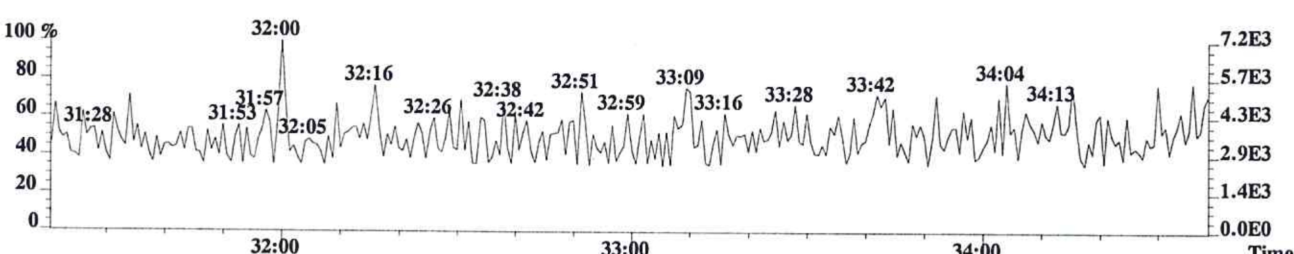
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20836.0,1.00%,F,T)



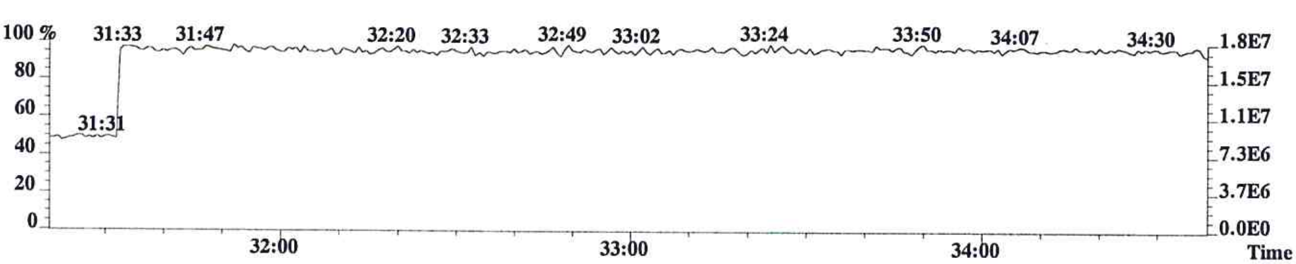
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14260.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

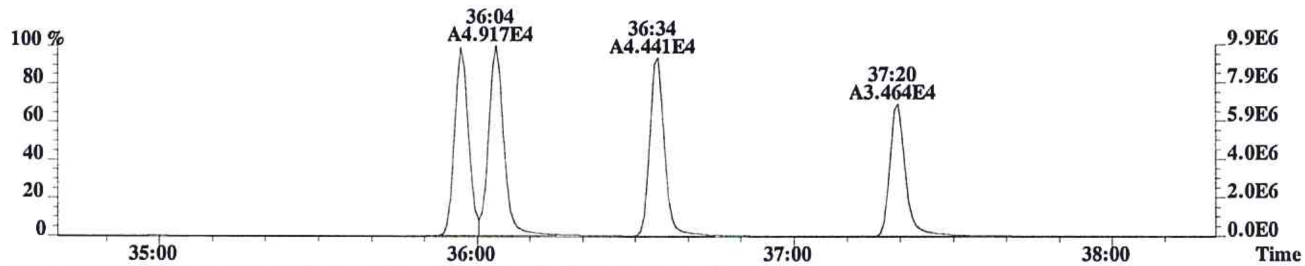


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

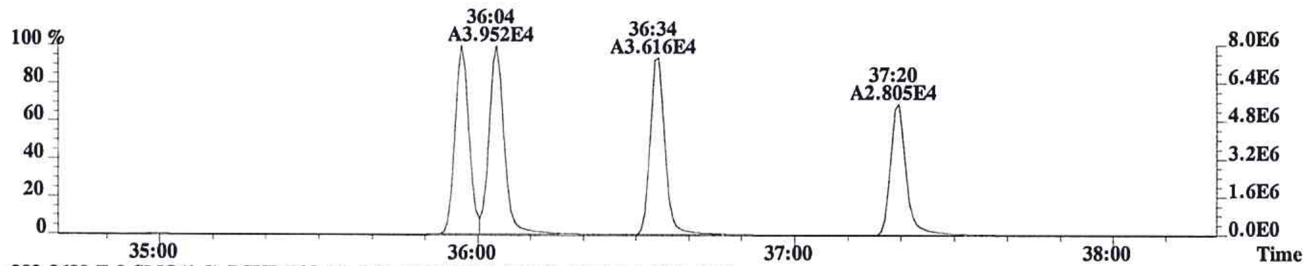


File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3

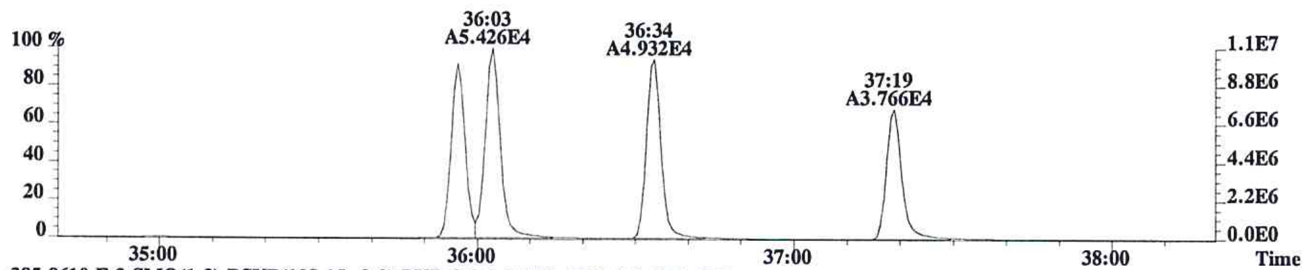
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



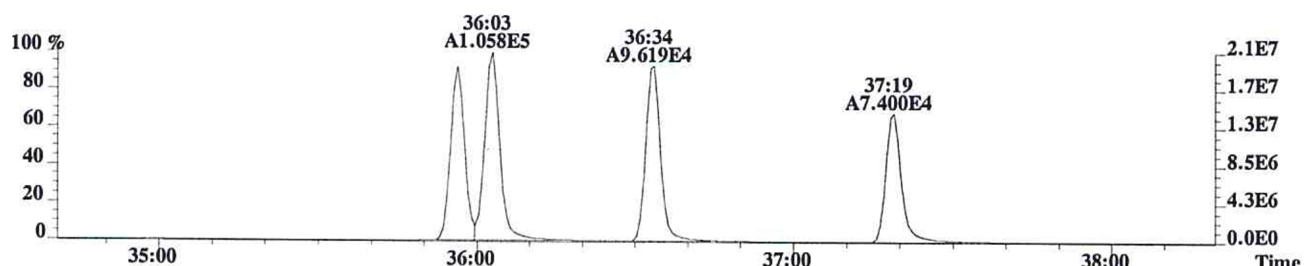
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



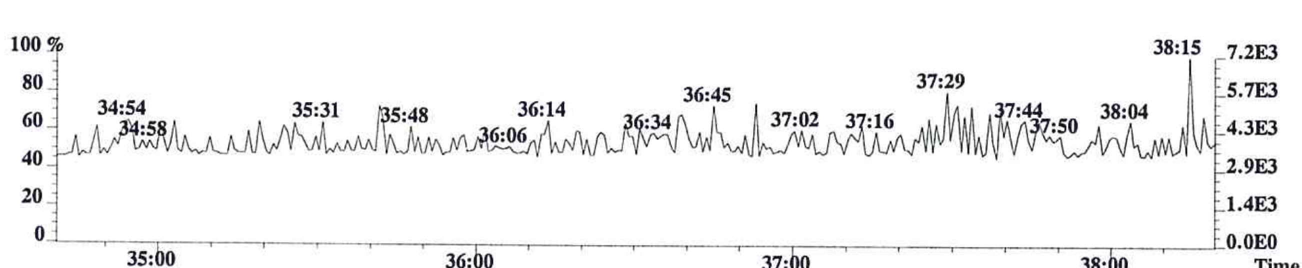
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)



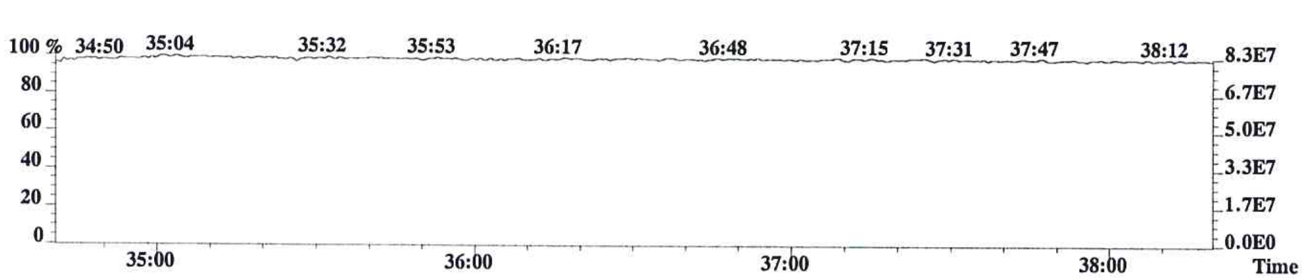
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.40%,F,T)



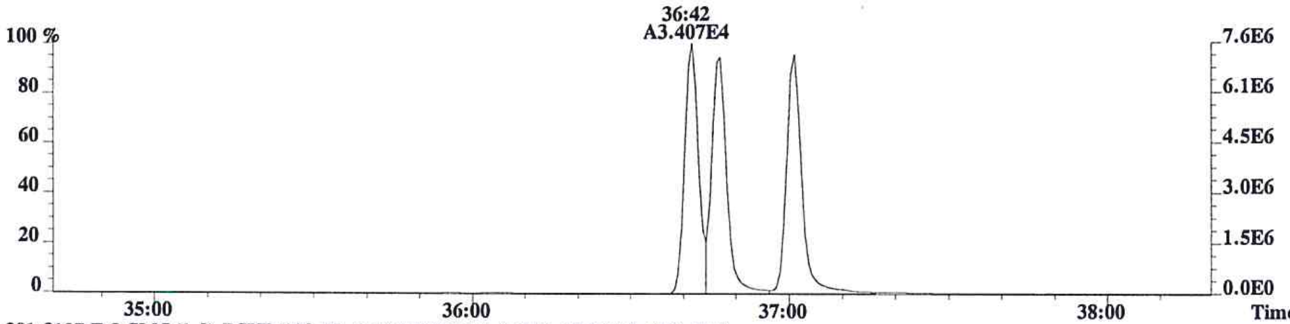
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



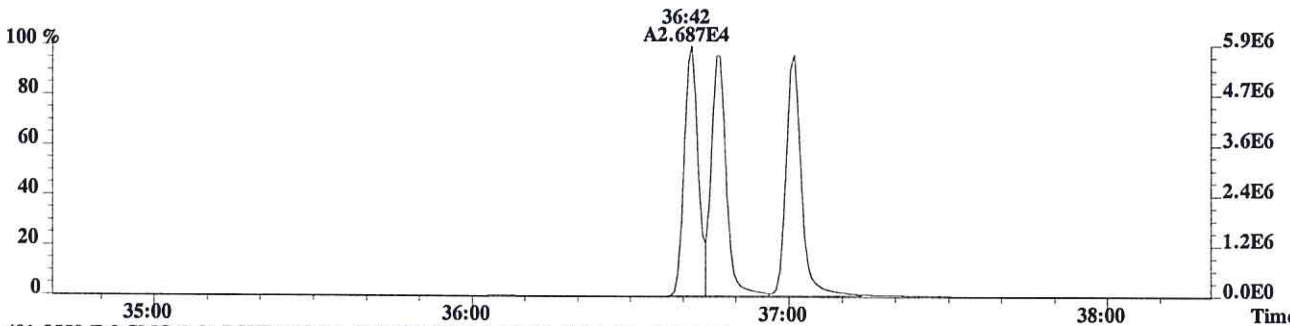
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



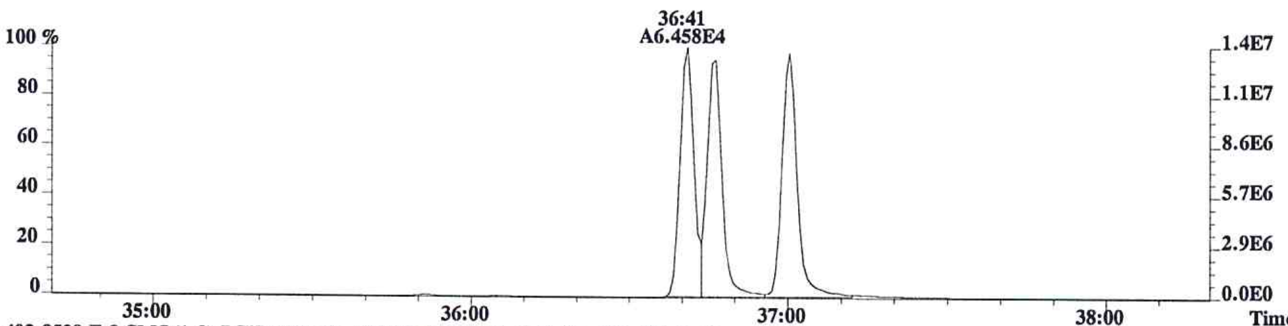
File:P603991 #1-329 Acq:25-JUN-2016 18:10:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



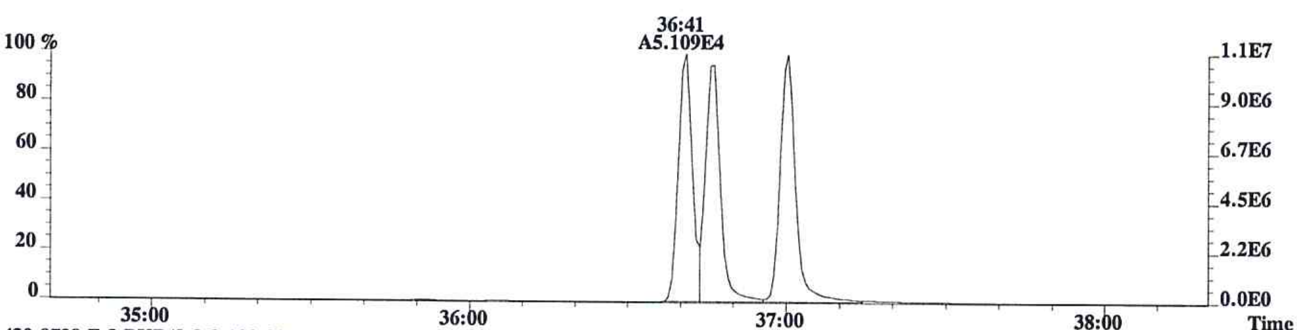
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



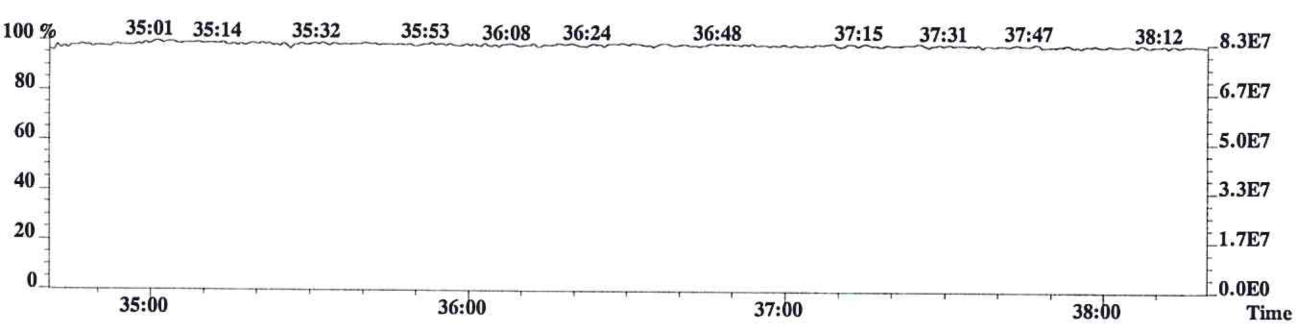
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P604006

Date: 06/26/16

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A SPME

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL   Contract:

Lab Code: Case No.:   Client No.:   SDG No.:

GC Column: DB-5MSUI   ID: 0.25 (mm)

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P604005	26-JUN-16	08:48:01
173638	CS3	P604006	26-JUN-16	09:39:51
METHOD BLANK	EQ1600220-01	P604007	26-JUN-16	11:18:23
METHOD BLANK	EQ1600222-01	P604008	26-JUN-16	12:04:48
METHOD BLANK	EQ1600222-04	P604009	26-JUN-16	12:53:50
LCS	EQ1600220-02	P604016	26-JUN-16	18:59:32
DLCS	EQ1600220-03	P604017	26-JUN-16	19:48:33
04072016SJGW14	E1600326-008	P604010	26-JUN-16	14:07:59
04072016SJGW15	E1600326-009	P604011	26-JUN-16	14:54:24

FORM V-HR CDD-3   DLM02.0(5/05)

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160626.SPL Page 1 of 2

Last Modified: Friday, July 01, 2016 08:56:23 Eastern Daylight Time

Printed: Friday, July 01, 2016 08:56:32 Eastern Daylight Time Page Position (1, 1)

opus 4: P604006res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/26/16	08:48	P604005	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 08:42
2		09:39	P604006	173638	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:18	P604007	EQ1600220-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		12:04	P604008	EQ1600222-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		12:53	P604009	EQ1600222-04	MB	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		14:07	P604010	E1600326-008	E1600326-008	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		14:54	P604011	E1600326-009	E1600326-009	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:43	P604012	E1600426-001	E1600426-001	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		16:32	P604013	E1600426-002	E1600426-002	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		17:21	P604014	E1600426-003	E1600426-003	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		18:10	P604015	E1600426-004	E1600426-004	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		18:59	P604016	EQ1600220-02	LCS	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		19:48	P604017	EQ1600220-03	DLCS	Tray1:13	EPA1613_ALS	Dioxin_ALS		HRMS check 10:25
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

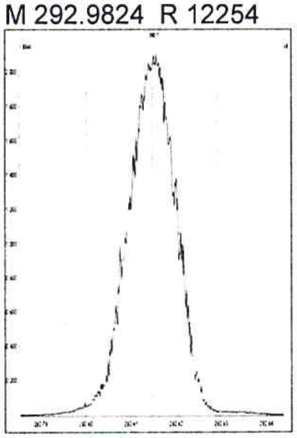
QC 07/07/16

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

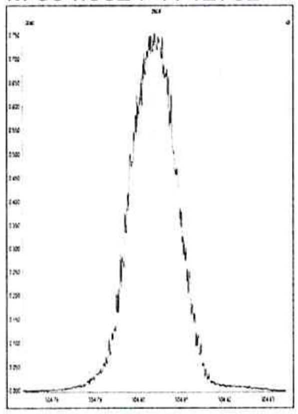
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:42:02 Eastern Daylight Time

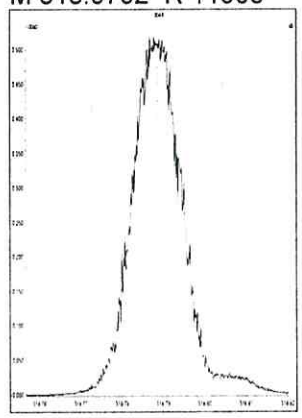
M 292.9824 R 12254



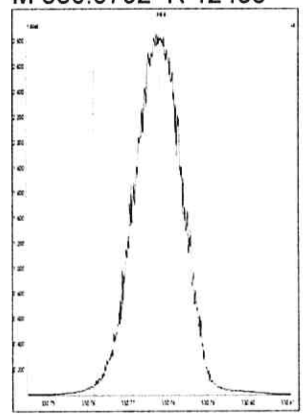
M 304.9824 R 12752



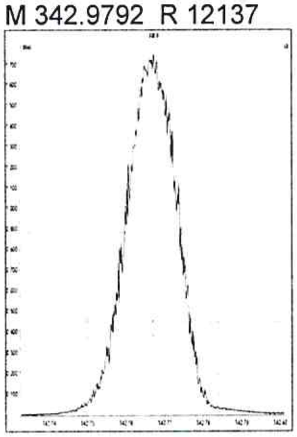
M 318.9792 R 11905



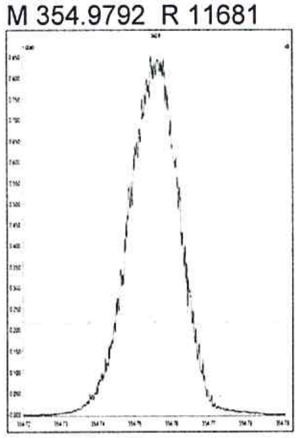
M 330.9792 R 12436



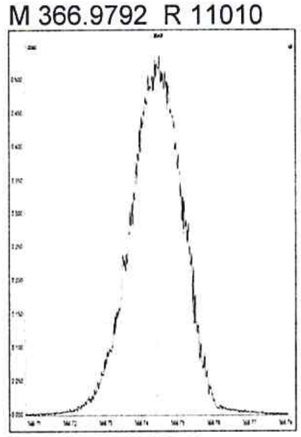
M 342.9792 R 12137



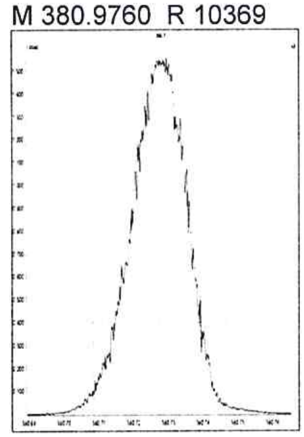
M 354.9792 R 11681



M 366.9792 R 11010



M 380.9760 R 10369

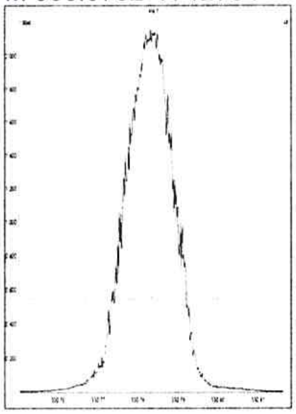


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

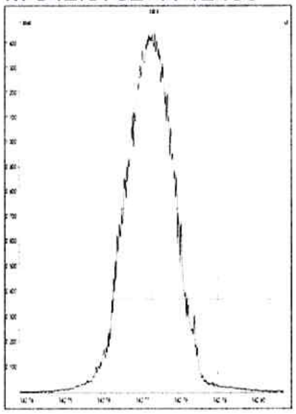
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:43:19 Eastern Daylight Time

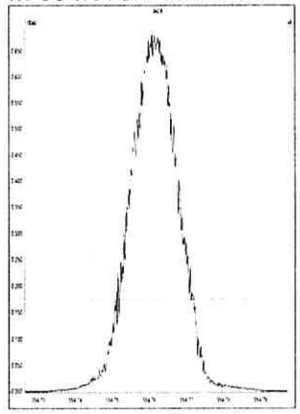
M 330.9792 R 12754



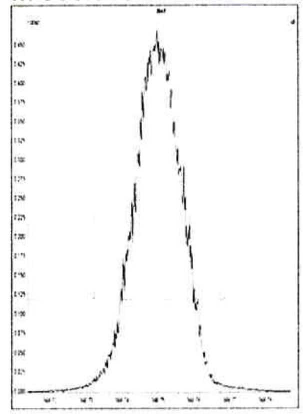
M 342.9792 R 12439



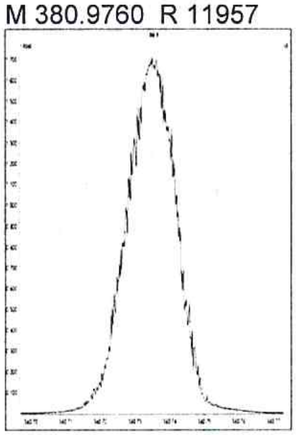
M 354.9792 R 12690



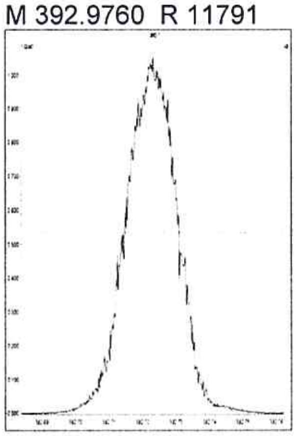
M 366.9792 R 12560



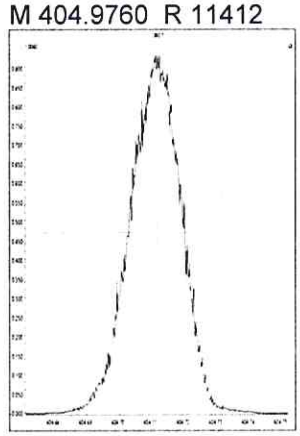
M 380.9760 R 11957



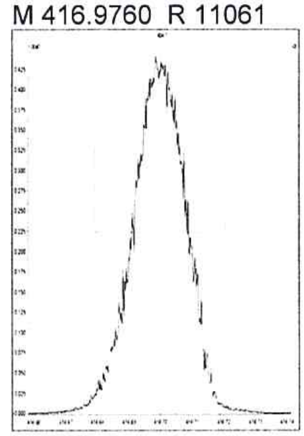
M 392.9760 R 11791



M 404.9760 R 11412



M 416.9760 R 11061

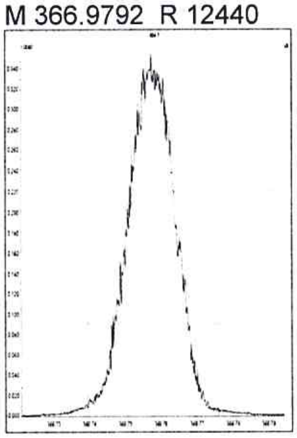


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

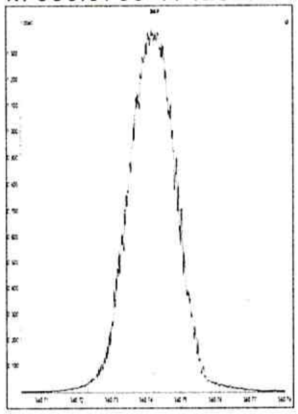
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:44:28 Eastern Daylight Time

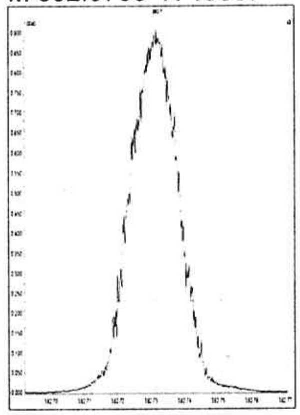
M 366.9792 R 12440



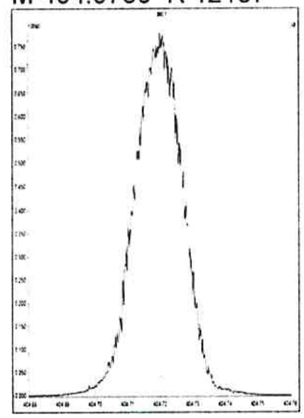
M 380.9760 R 12627



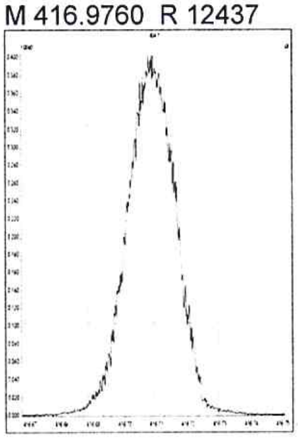
M 392.9760 R 13087



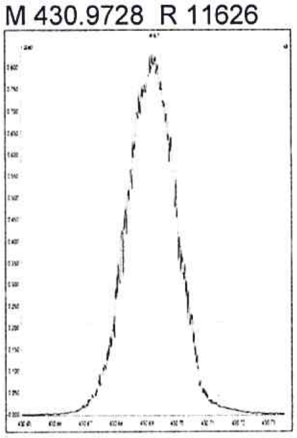
M 404.9760 R 12137



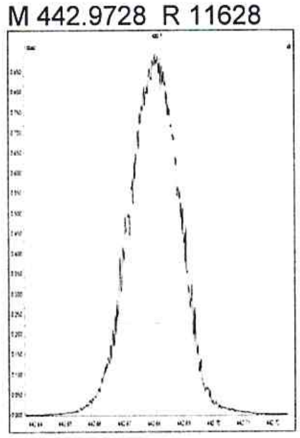
M 416.9760 R 12437



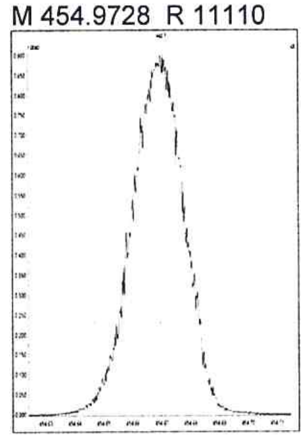
M 430.9728 R 11626



M 442.9728 R 11628



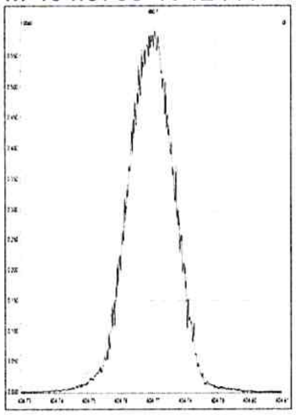
M 454.9728 R 11110



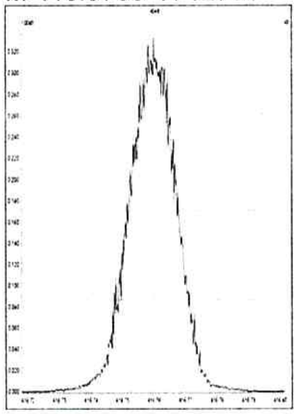
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:45:53 Eastern Daylight Time

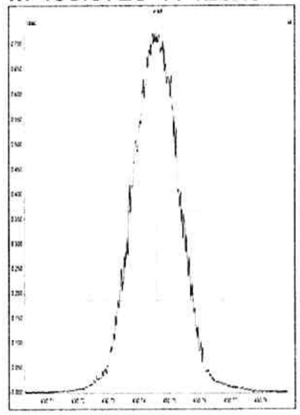
M 404.9760 R 12441



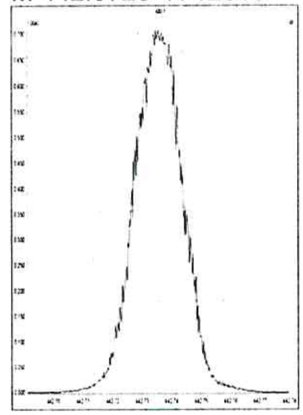
M 416.9760 R 12751



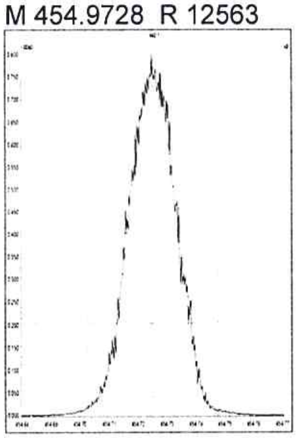
M 430.9728 R 12820



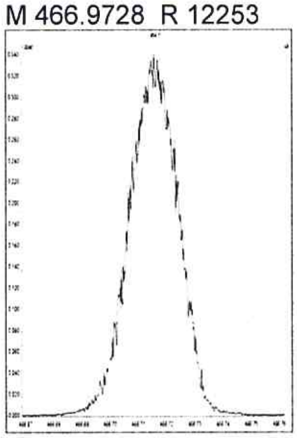
M 442.9728 R 12313



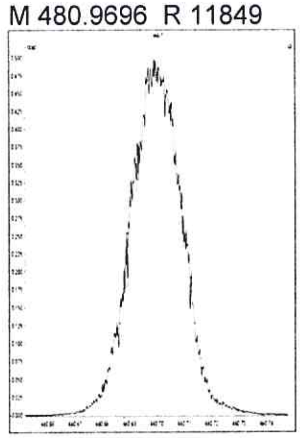
M 454.9728 R 12563



M 466.9728 R 12253



M 480.9696 R 11849

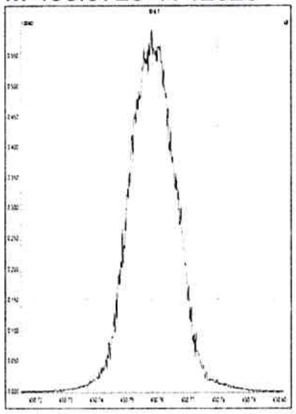


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

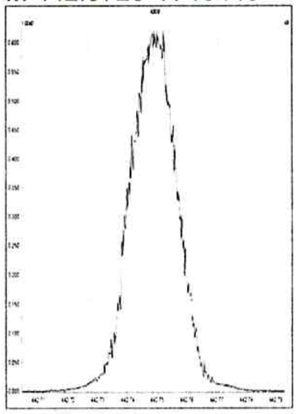
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, June 26, 2016 08:47:08 Eastern Daylight Time

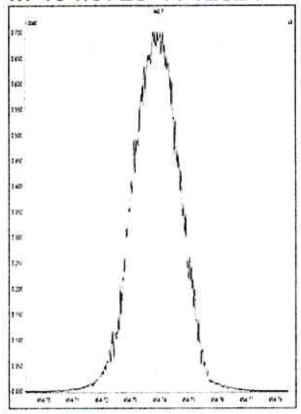
M 430.9728 R 12626



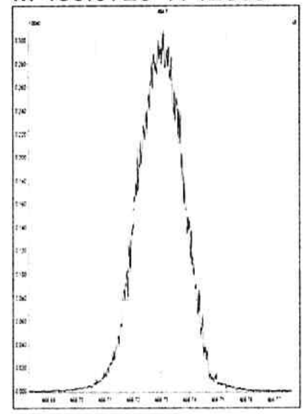
M 442.9728 R 13443



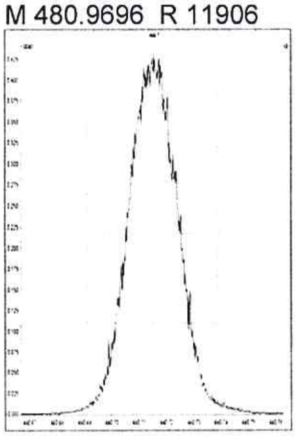
M 454.9728 R 12821



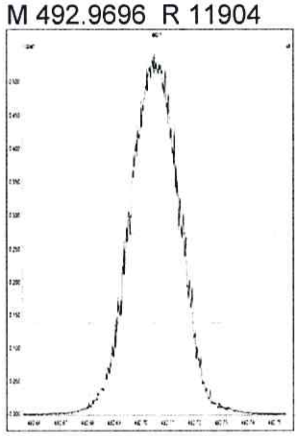
M 466.9728 R 12889



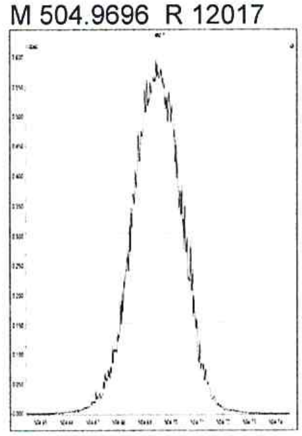
M 480.9696 R 11906



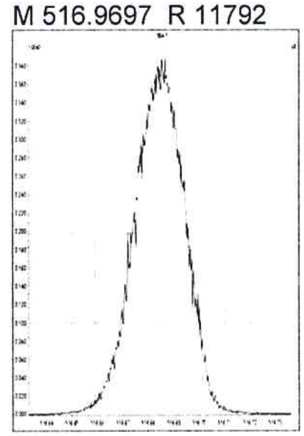
M 492.9696 R 11904



M 504.9696 R 12017



M 516.9697 R 11792

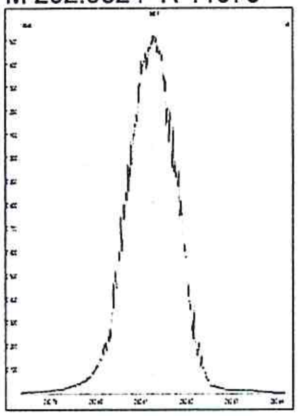


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

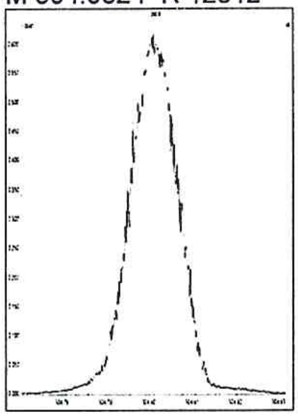
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:25:05 Eastern Daylight Time

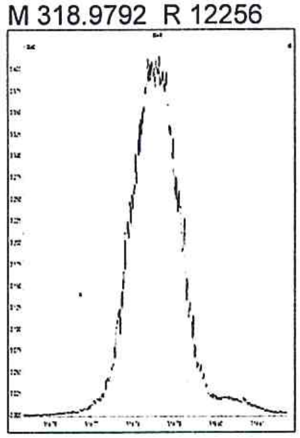
M 292.9824 R 11573



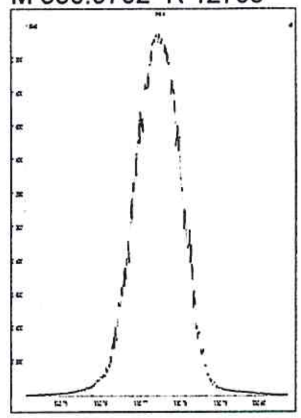
M 304.9824 R 12312



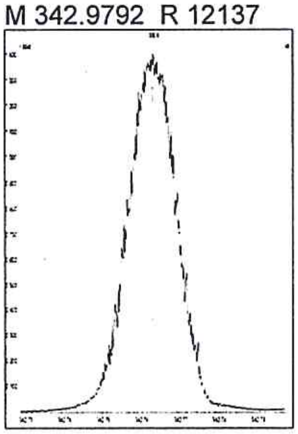
M 318.9792 R 12256



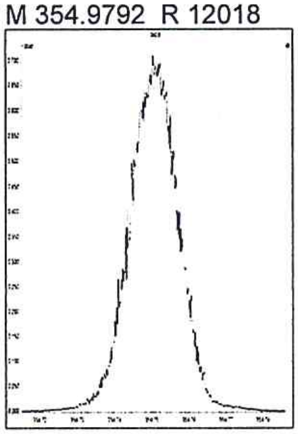
M 330.9792 R 12753



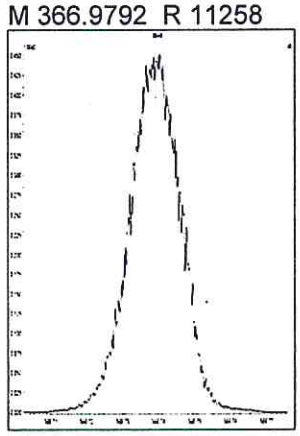
M 342.9792 R 12137



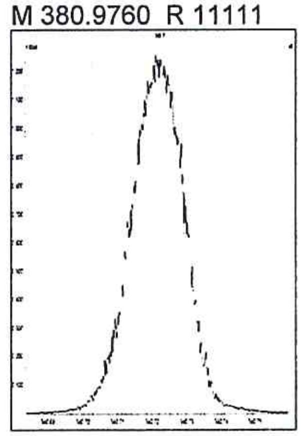
M 354.9792 R 12018



M 366.9792 R 11258



M 380.9760 R 11111

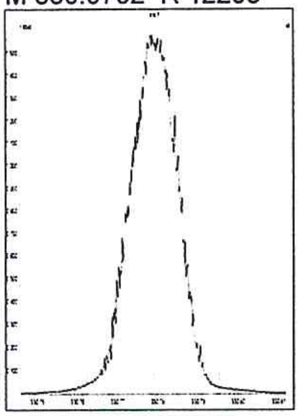


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

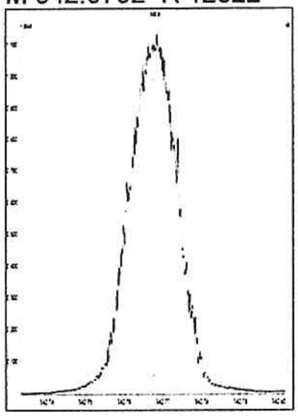
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:27:01 Eastern Daylight Time

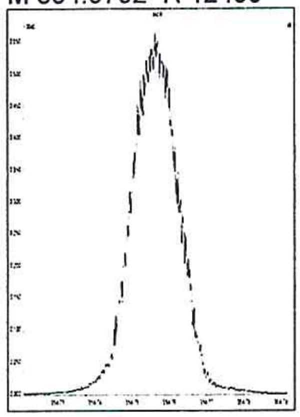
M 330.9792 R 12253



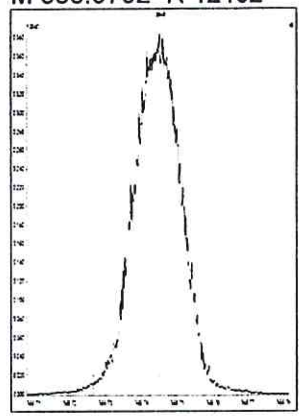
M 342.9792 R 12822



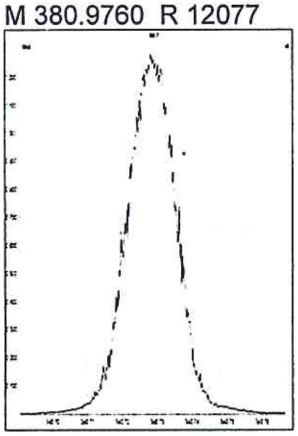
M 354.9792 R 12499



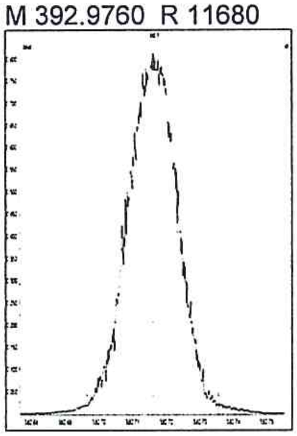
M 366.9792 R 12192



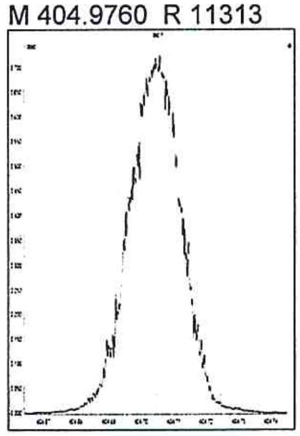
M 380.9760 R 12077



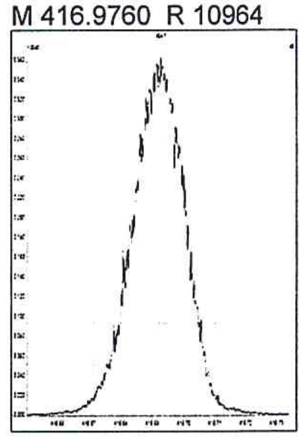
M 392.9760 R 11680



M 404.9760 R 11313



M 416.9760 R 10964

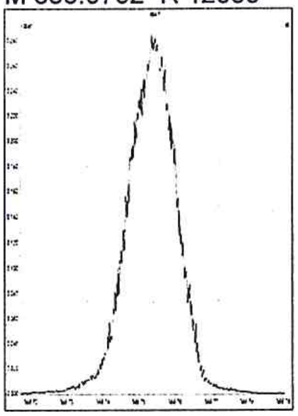


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

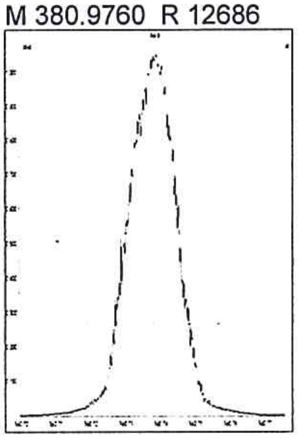
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:28:22 Eastern Daylight Time

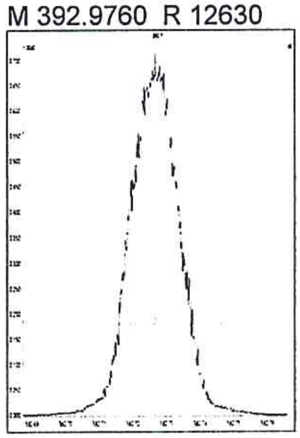
M 366.9792 R 12565



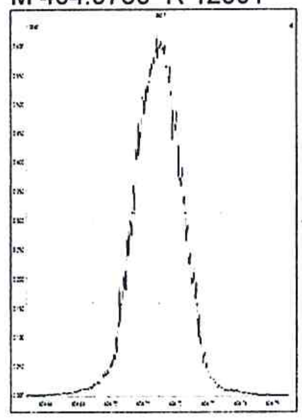
M 380.9760 R 12686



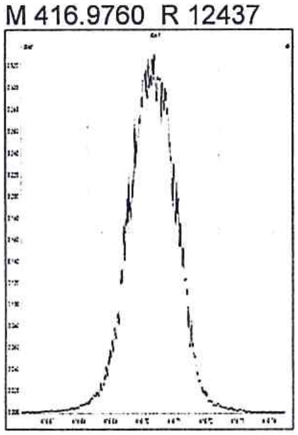
M 392.9760 R 12630



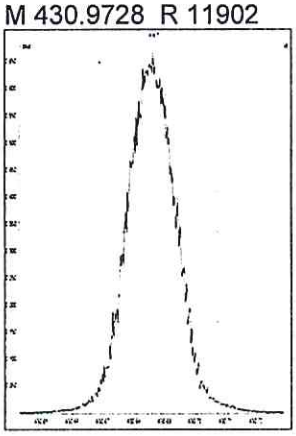
M 404.9760 R 12501



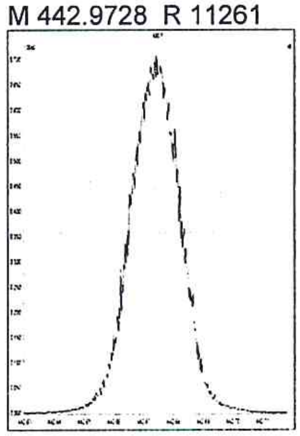
M 416.9760 R 12437



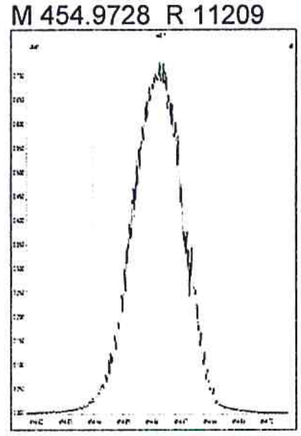
M 430.9728 R 11902



M 442.9728 R 11261



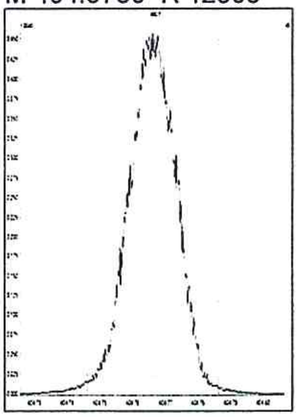
M 454.9728 R 11209



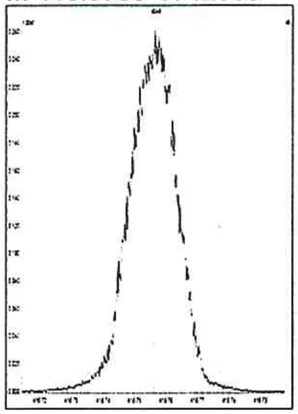
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:29:47 Eastern Daylight Time

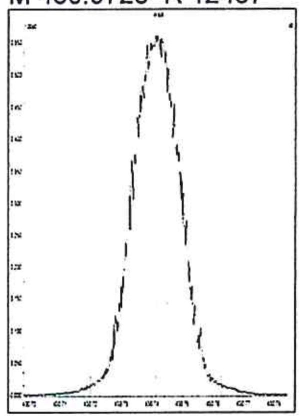
M 404.9760 R 12503



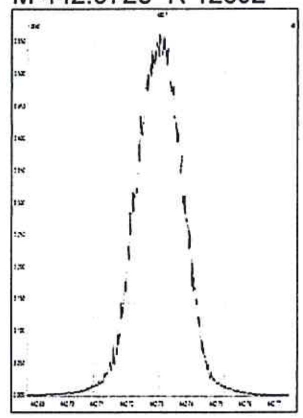
M 416.9760 R 12563



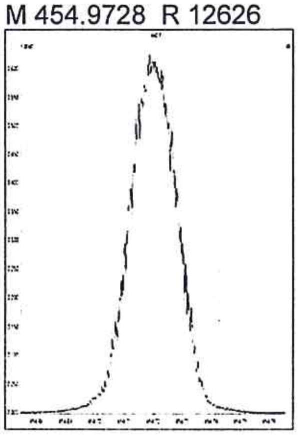
M 430.9728 R 12437



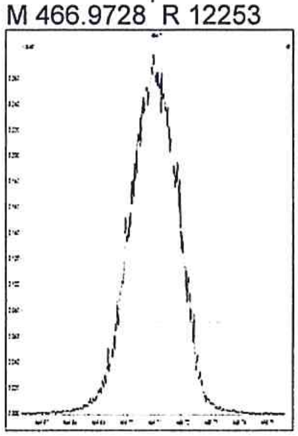
M 442.9728 R 12692



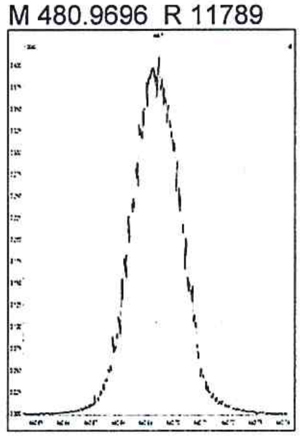
M 454.9728 R 12626



M 466.9728 R 12253



M 480.9696 R 11789

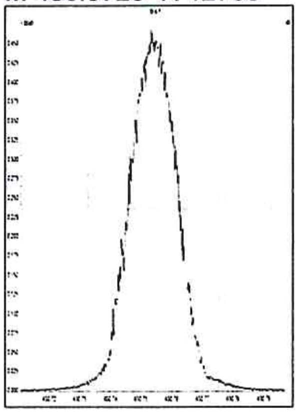


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

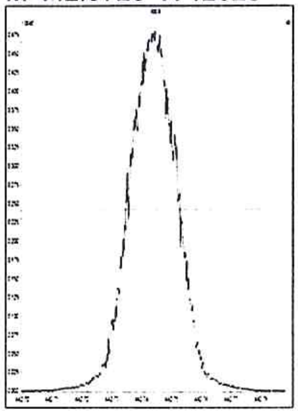
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, June 27, 2016 10:31:11 Eastern Daylight Time

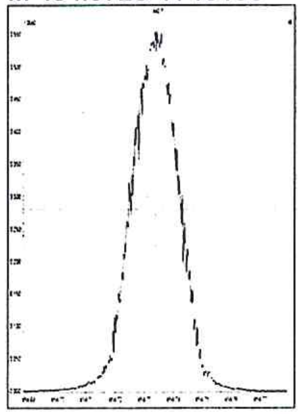
M 430.9728 R 12755



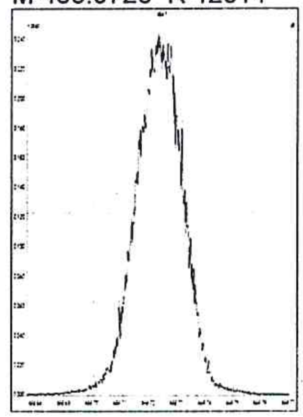
M 442.9728 R 12628



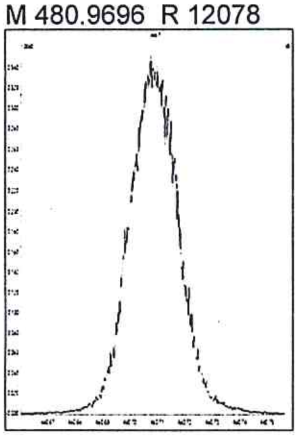
M 454.9728 R 13158



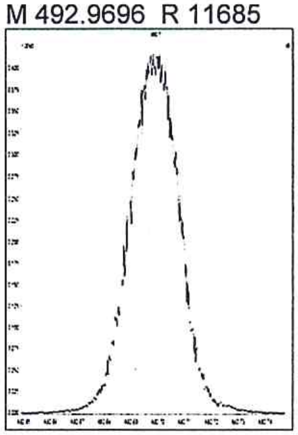
M 466.9728 R 12314



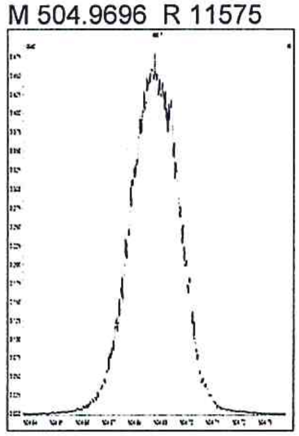
M 480.9696 R 12078



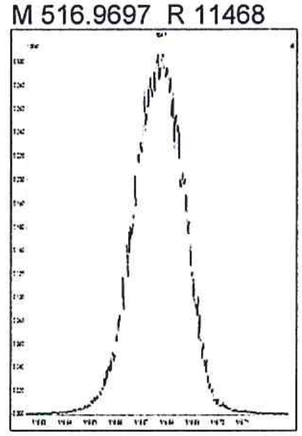
M 492.9696 R 11685



M 504.9696 R 11575



M 516.9697 R 11468



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

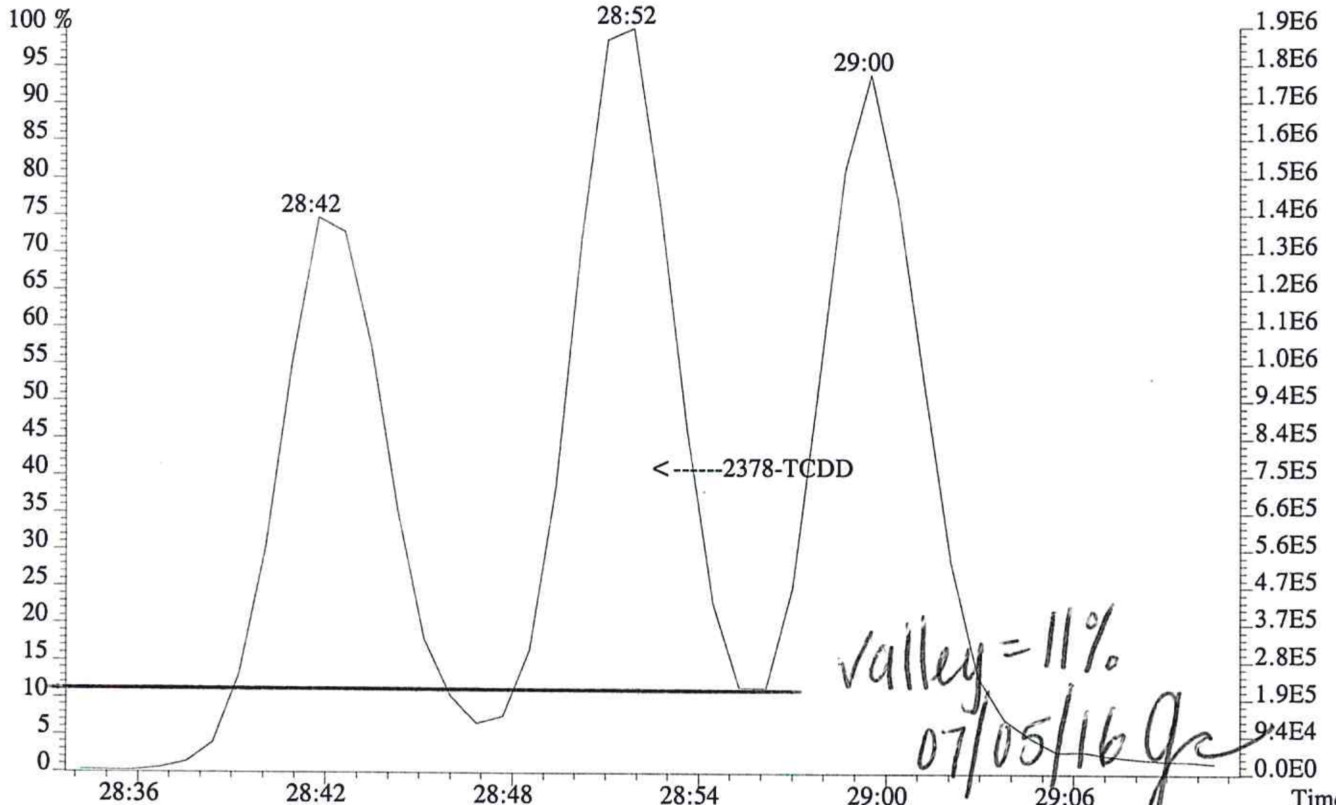
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: ______________ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P604005
Date Analyzed: 26-JUN-2016
Time Analyzed: 08:48:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:41	30:03
TCDD	25:32	29:52
PeCDF	29:56	34:13
PeCDD	31:29	33:57
HxCDF	34:50	37:20
HxCDD	35:20	36:56

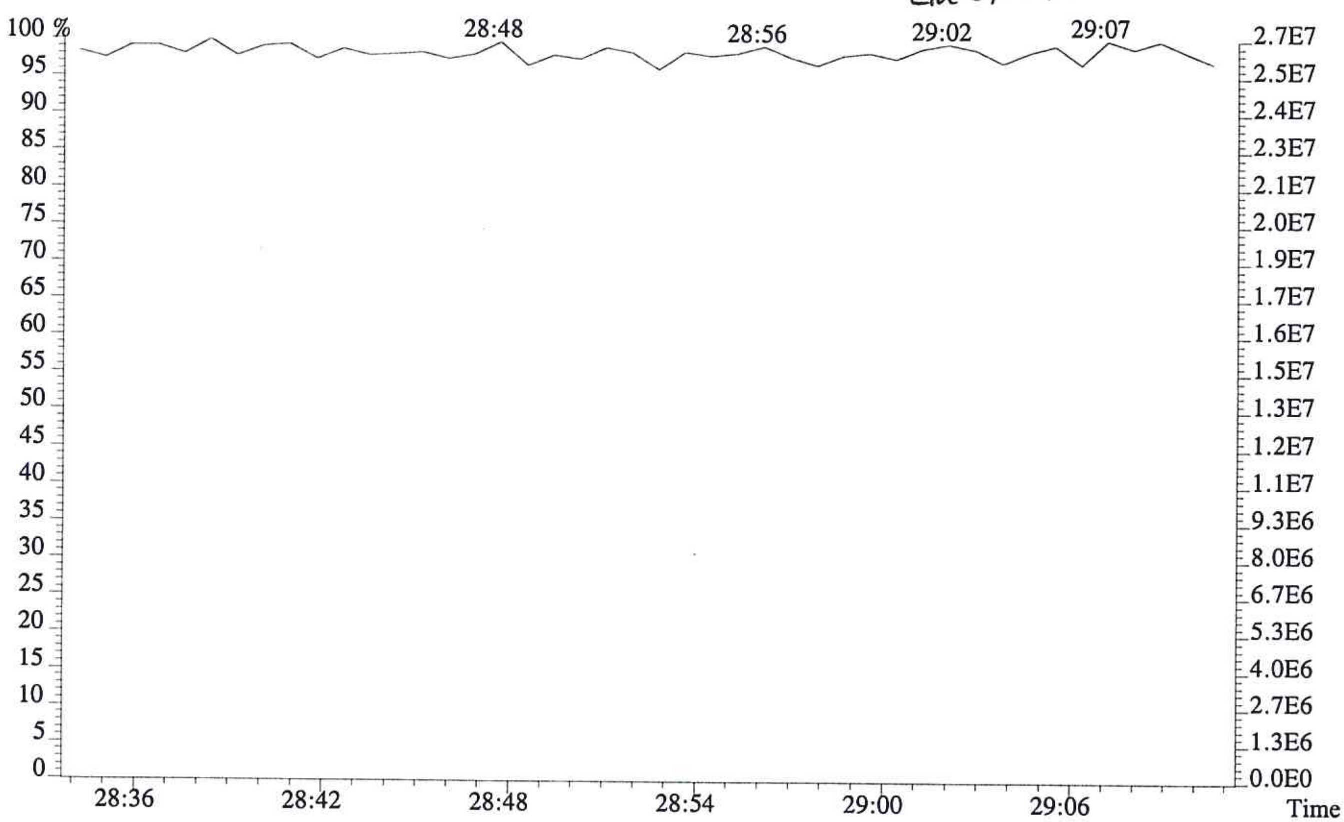
% Valley 2378-TCDD: 11 %

File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

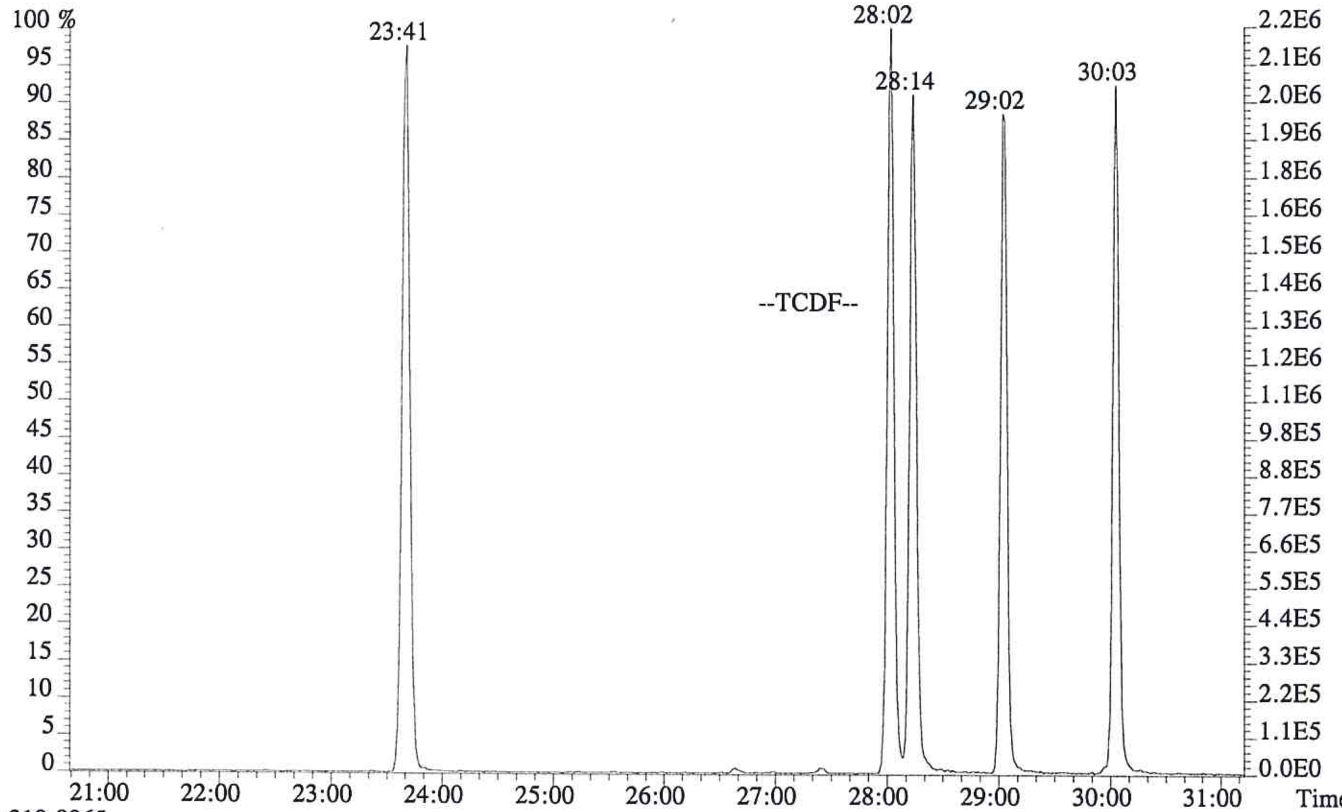


318.9792

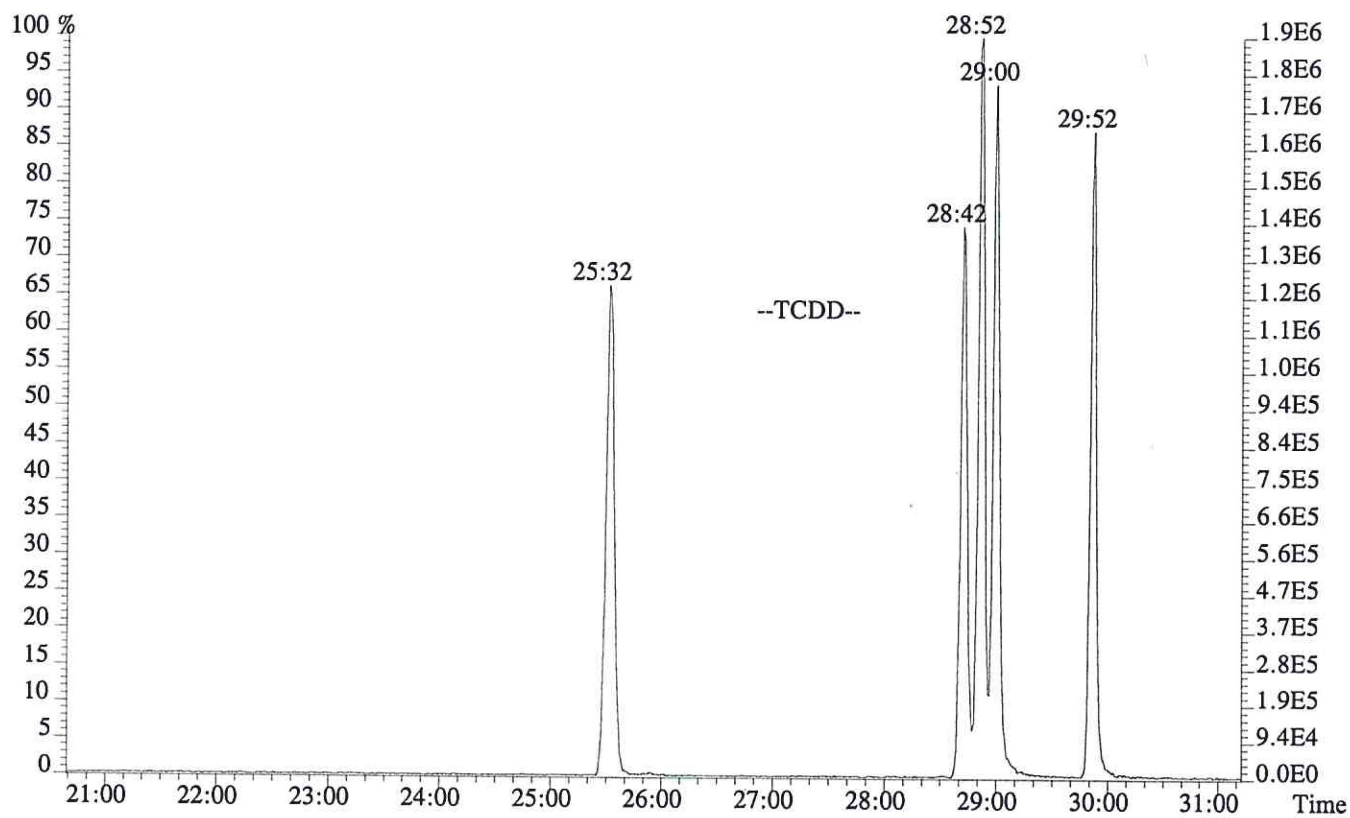
LM 07/07/16



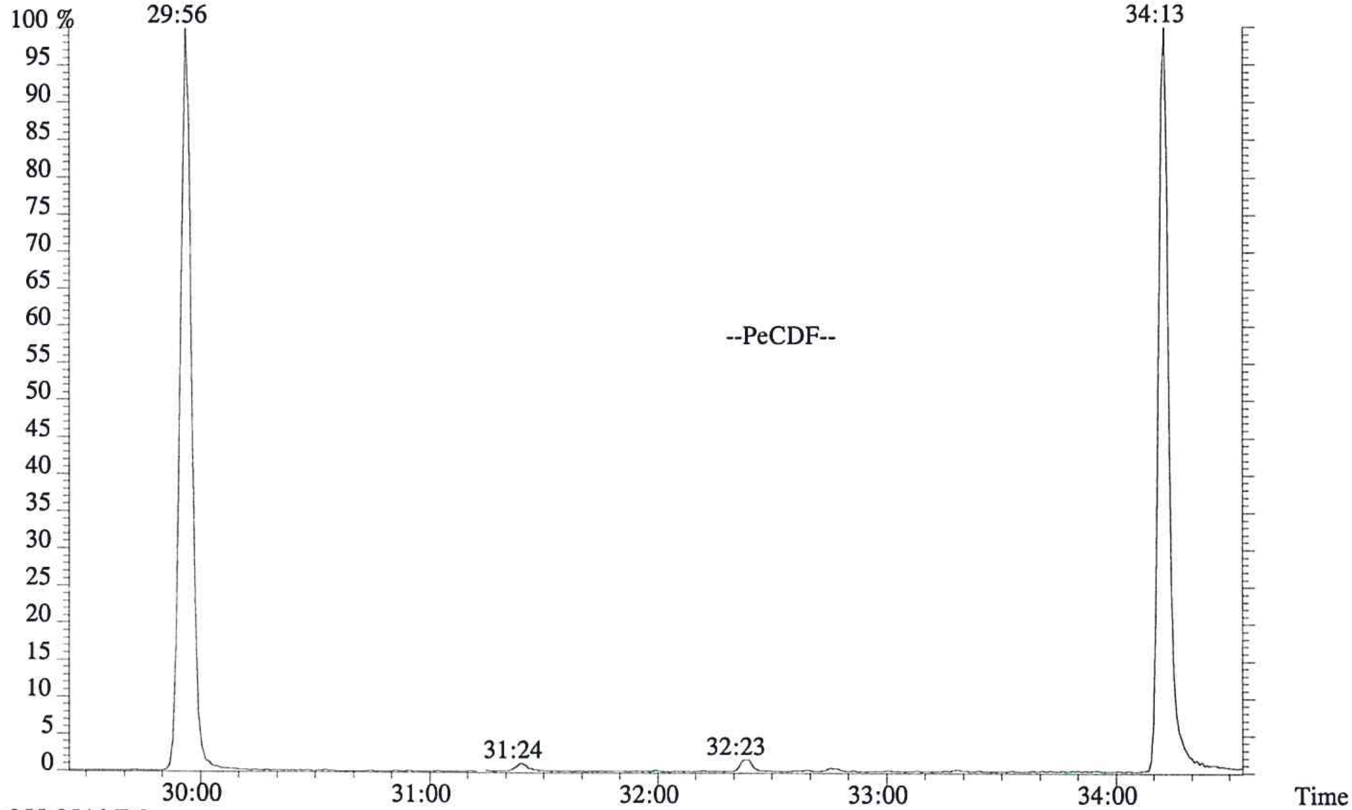
File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



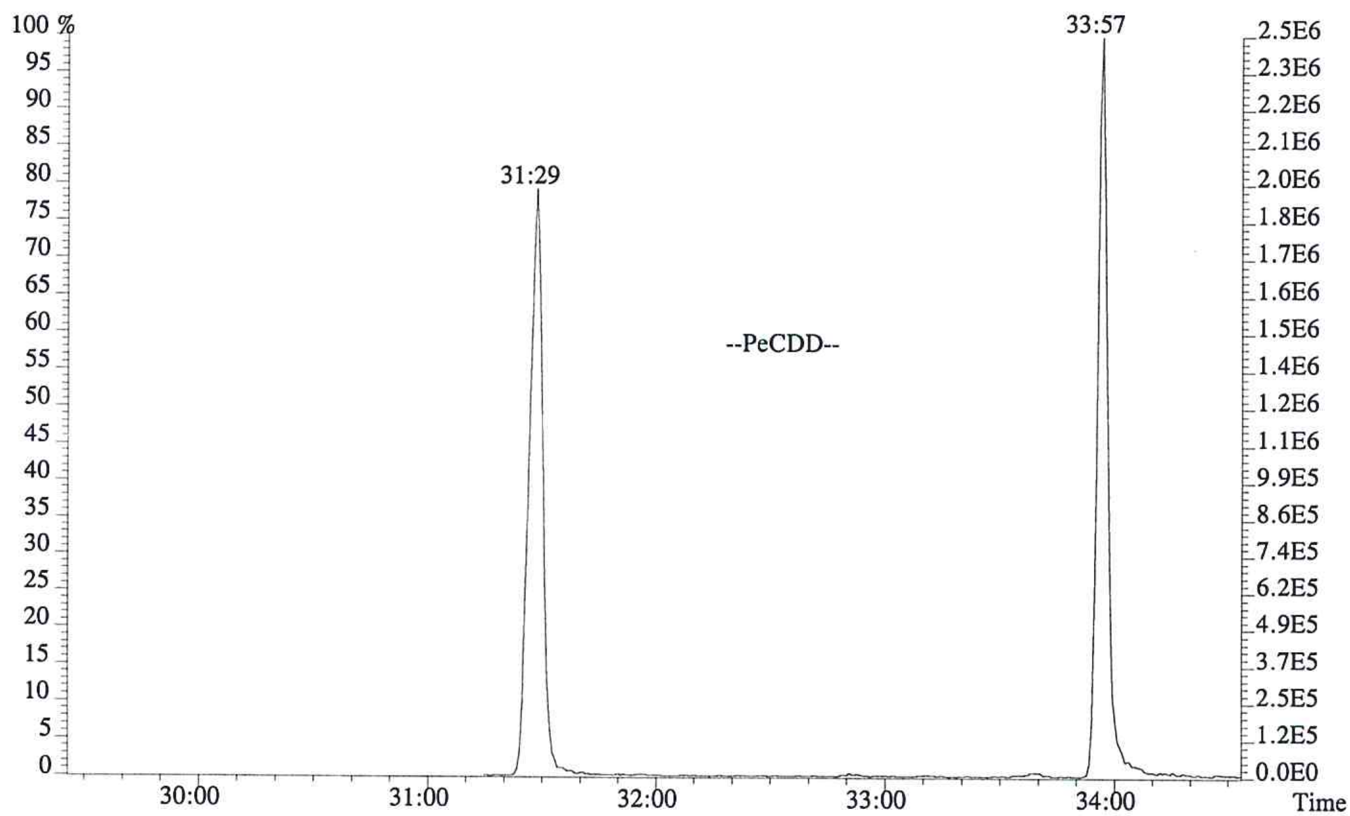
319.8965



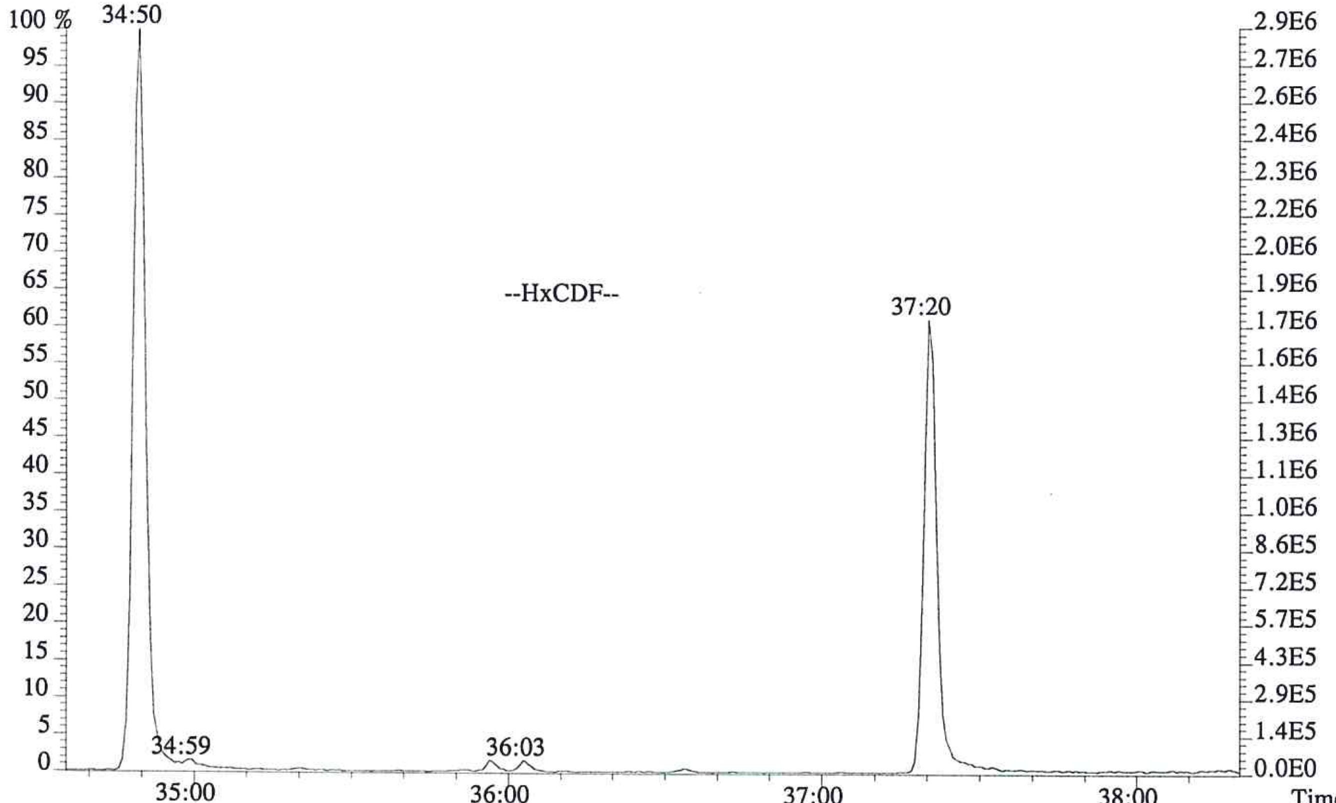
File:P604005 #1-749 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



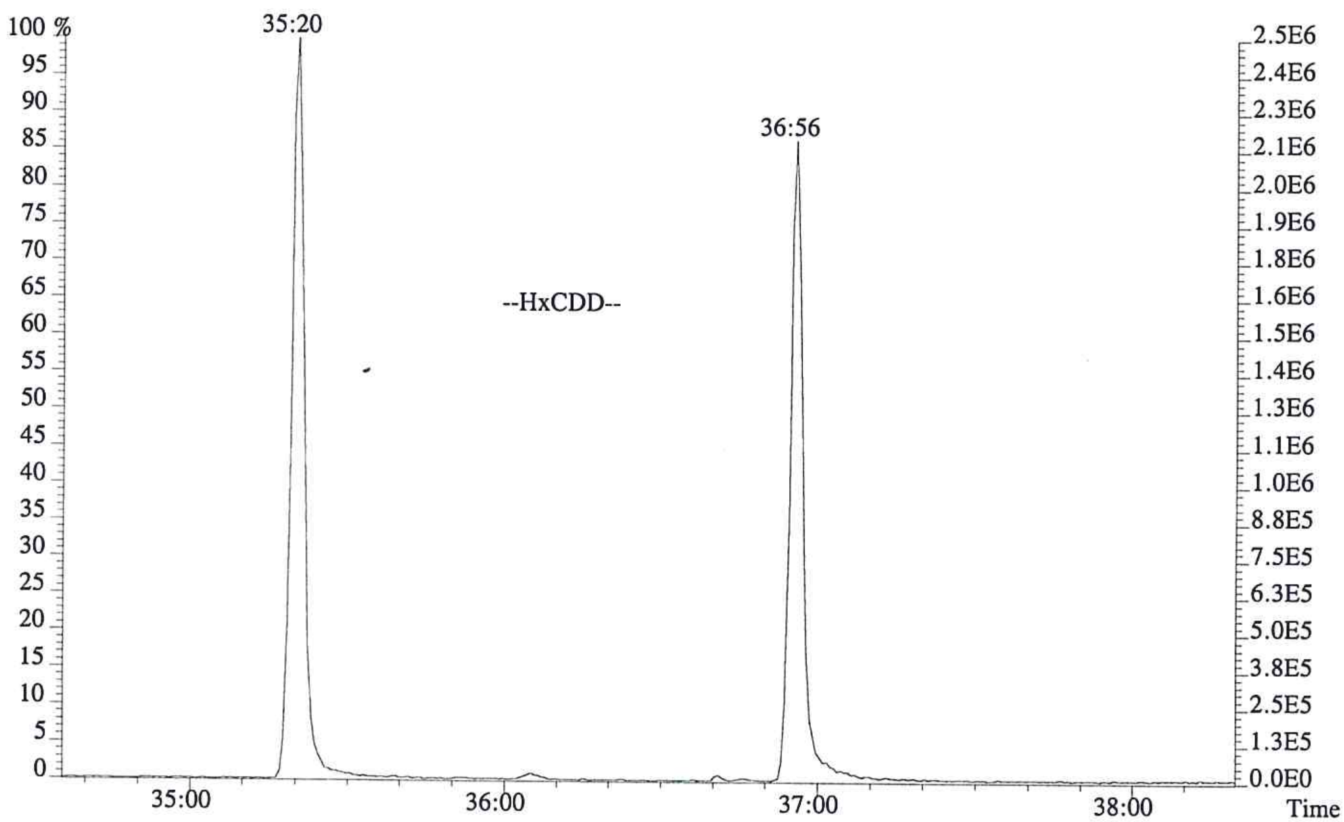
355.8546 F:2



File:P604005 #1-337 Acq:26-JUN-2016 08:48:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P604006 Analysis Date: 26-JUN-16 Time: 09:39:51

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	4.6	3.9 - 6.45	-8.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	4.6	4.2 - 6.0	-8.7
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	25.3	20.5 - 30.5	1.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P604006 Analysis Date: 26-JUN-16 Time: 09:39:51

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	51	41 - 60.5	2.2
13C-1,2,3,4-TCDF	M/M+2	0.79	0.65-0.89	48	35.5-70	-3.2
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	49	35.5-70	-2.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	47	38 - 65	-5.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	45	38.5 - 65	-10.1
13C-1,2,3,7,8,9-HxCDF		0.51	0.43-0.59	51	37 - 67.5	1.3
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	-0.5

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #6 Filename P604006 Samp: 1 Inj: 1 Acquired: 26-JUN-16 09:39:51
Processed: 7-JUL-16 08:02:36 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:13	6.006e+03	8.060e+03	0.75	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:18	4.535e+04	2.938e+04	1.54	yes	no	0.929
11	Unk	2,3,7,8-TCDD	28:59	5.052e+03	6.689e+03	0.76	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:11	7.074e+04	9.022e+04	0.78	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:22	1.027e+05	6.509e+04	1.58	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:17	9.728e+04	6.152e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	3.128e+04	6.181e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:57	7.295e+04	9.239e+04	0.79	yes	no	1.325
27	IS	13C-2,3,7,8-TCDD	28:58	5.358e+04	6.862e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:22	5.707e+04	7.174e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	5.907e+04	4.596e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:59	1.211e+04				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173638

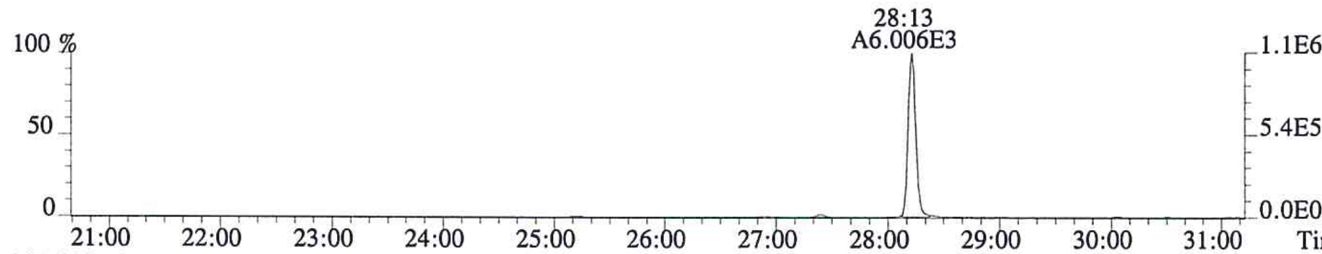
Run #6 Filename P604006 Samp: 1 Inj: 1 Acquired: 26-JUN-16 09:39:51
Processed: 7-JUL-16 08:02:36 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.08e+06	1.18e+03	9.2e+02	1.46e+06	3.18e+03	4.6e+02
3	2,3,4,7,8-PeCDF	8.96e+06	1.40e+03	6.4e+03	5.78e+06	1.17e+04	4.9e+02
11	2,3,7,8-TCDD	9.68e+05	1.22e+03	7.9e+02	1.27e+06	1.48e+03	8.6e+02
18	13C-2,3,7,8-TCDF	1.25e+07	4.44e+03	2.8e+03	1.60e+07	2.40e+03	6.7e+03
19	13C-1,2,3,7,8-PeCDF	1.90e+07	1.81e+04	1.0e+03	1.19e+07	2.43e+03	4.9e+03
20	13C-2,3,4,7,8-PeCDF	1.89e+07	1.81e+04	1.0e+03	1.18e+07	2.43e+03	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.26e+06	1.18e+03	5.3e+03	1.22e+07	1.90e+03	6.4e+03
26	13C-1,2,3,4-TCDF	1.21e+07	4.44e+03	2.7e+03	1.53e+07	2.40e+03	6.4e+03
27	13C-2,3,7,8-TCDD	9.99e+06	7.30e+03	1.4e+03	1.27e+07	3.19e+03	4.0e+03
33	13C-1,2,3,4-TCDD	1.08e+07	7.30e+03	1.5e+03	1.35e+07	3.19e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.16e+07	3.04e+03	3.8e+03	9.23e+06	1.53e+03	6.0e+03
35	37Cl-2,3,7,8-TCDD	2.28e+06	2.04e+03	1.1e+03			

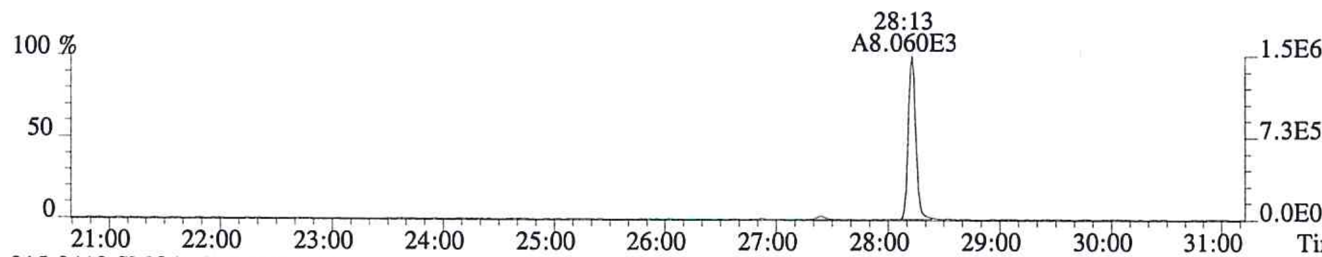
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

www.alsglobal.com

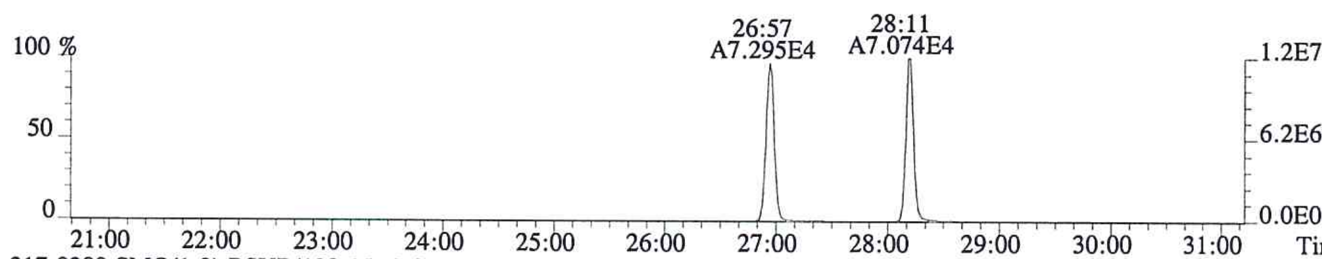
File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



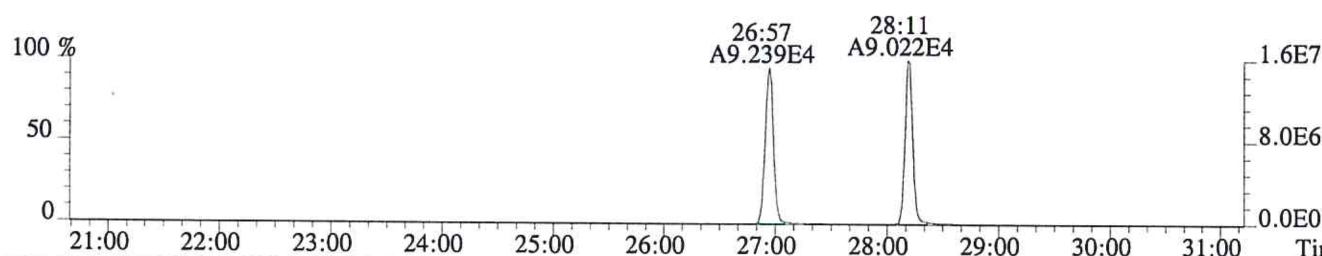
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



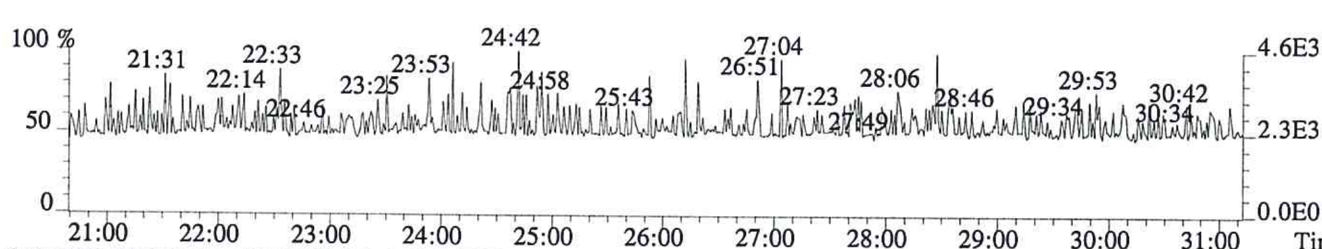
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4436.0,1.00%,F,T)



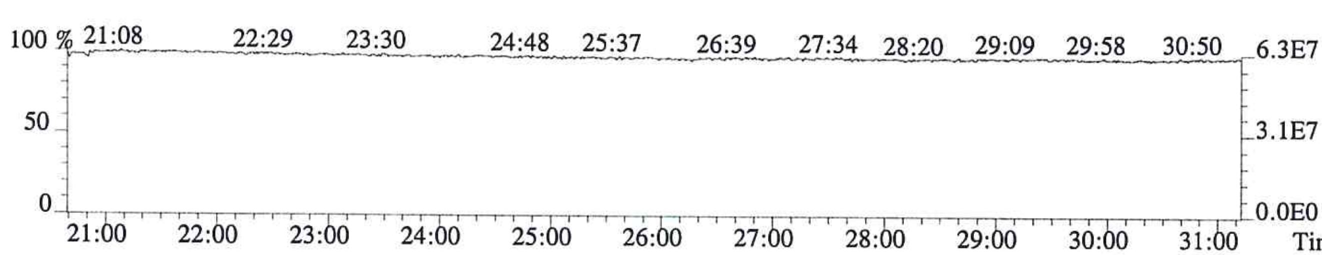
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



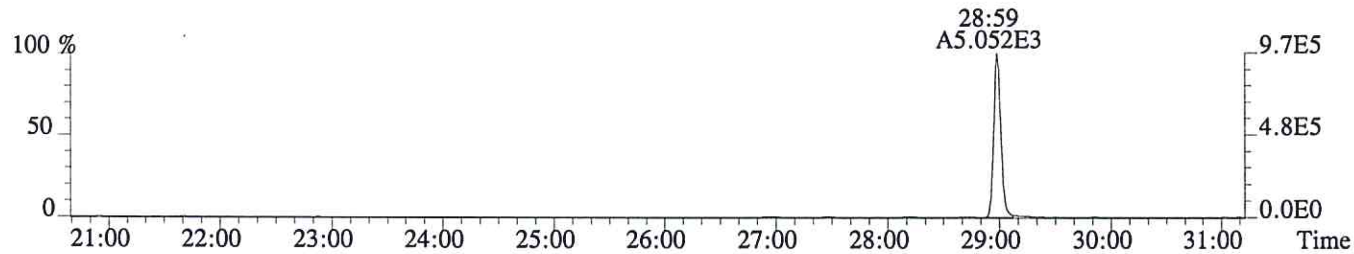
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



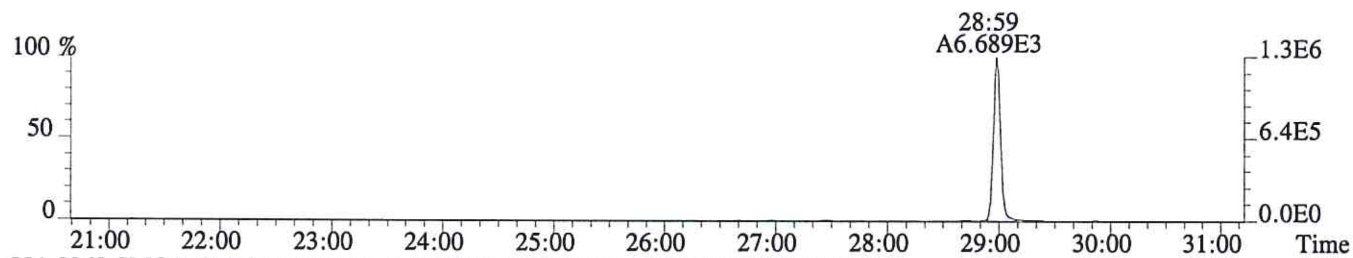
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



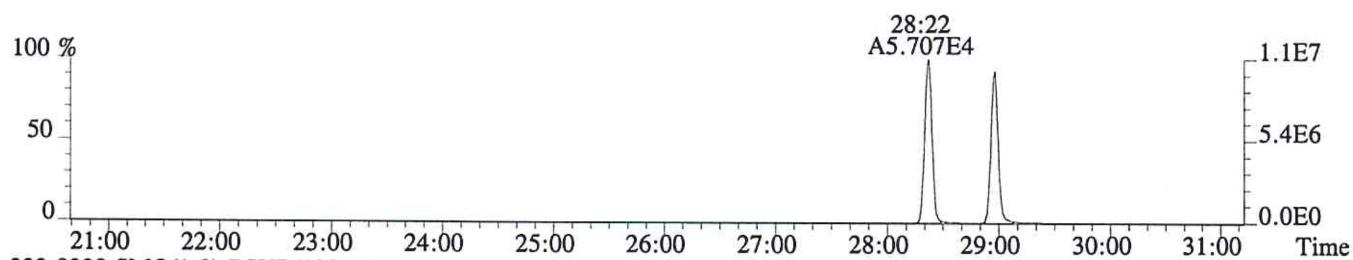
File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



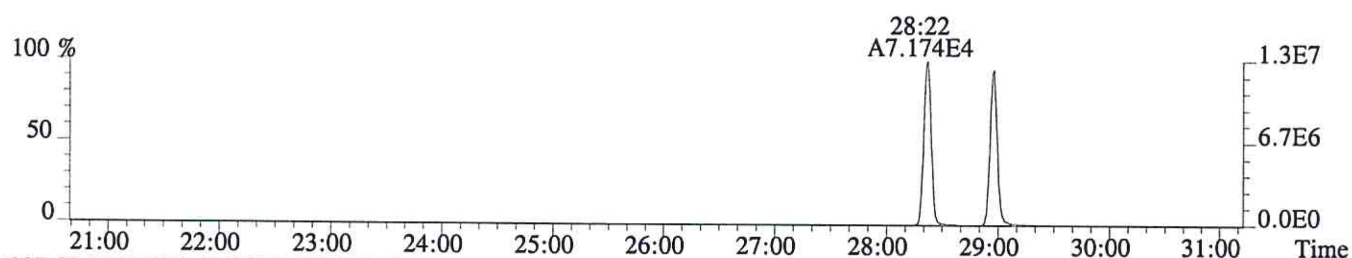
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



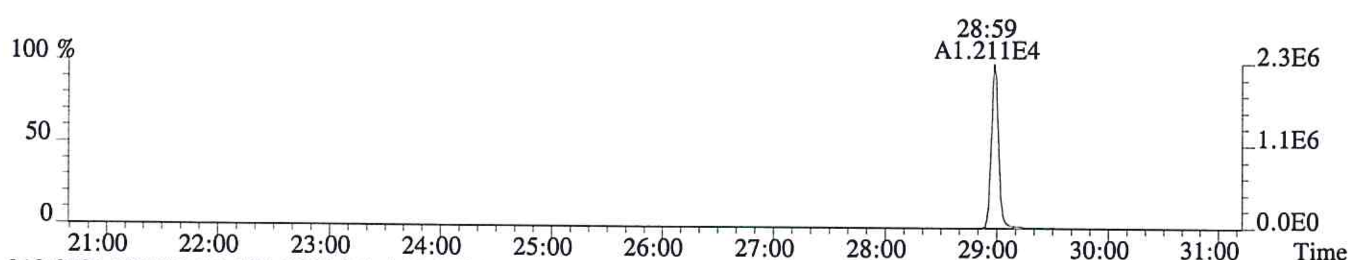
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7296.0,1.00%,F,T)



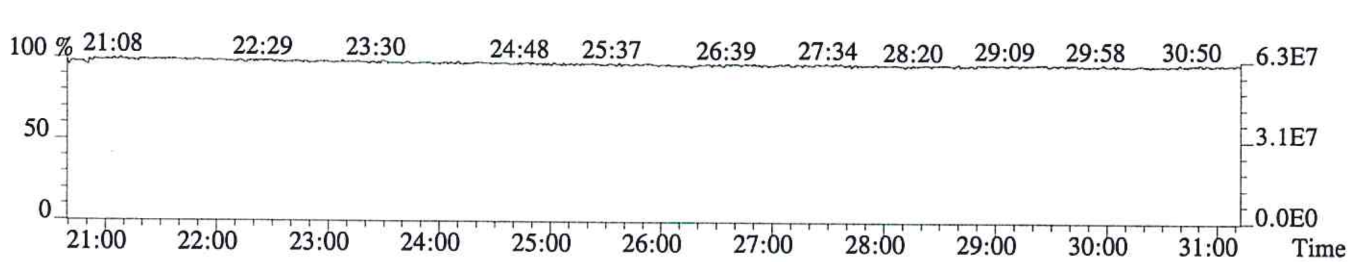
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3188.0,1.00%,F,T)



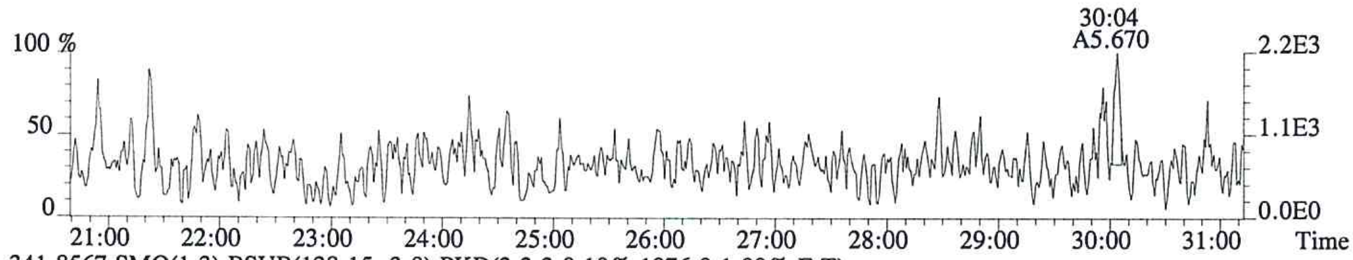
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



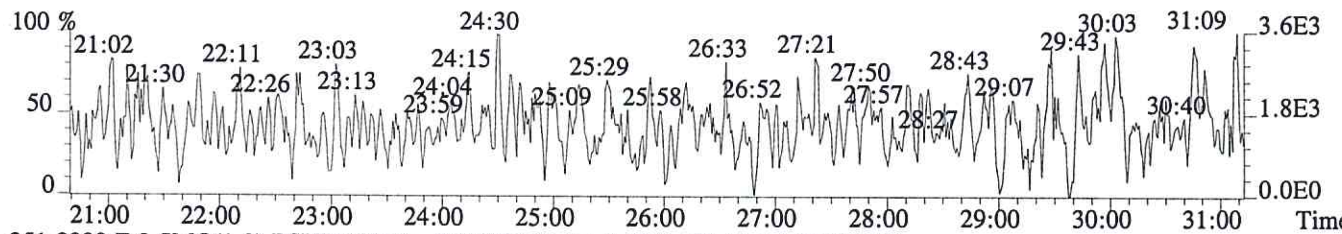
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



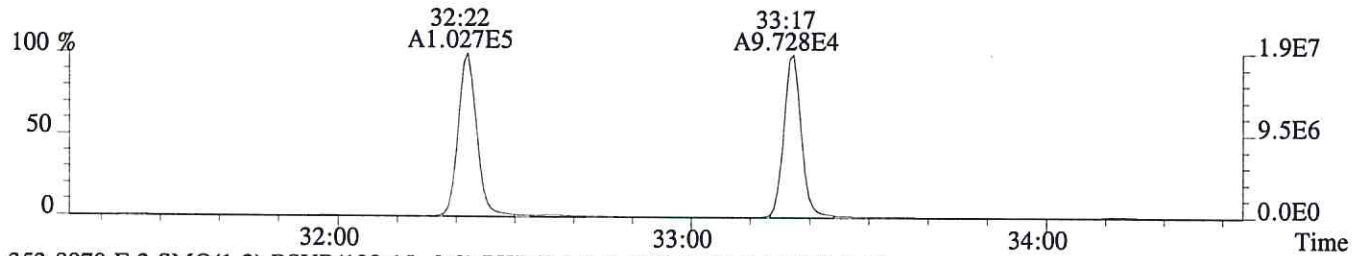
File:P604006 #1-749 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



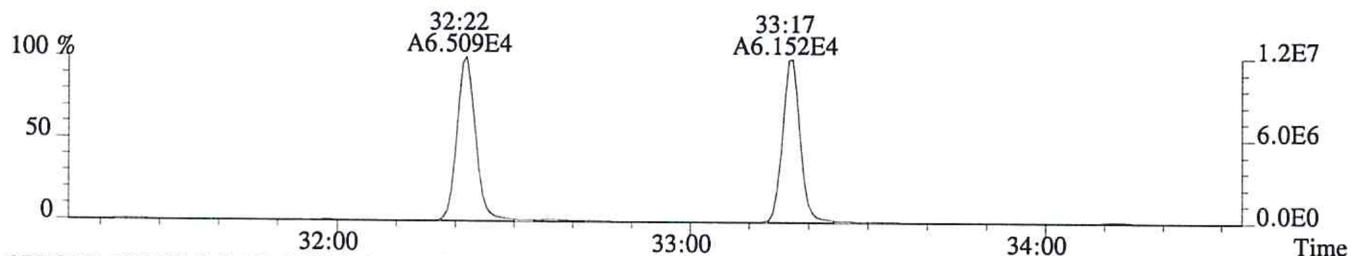
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



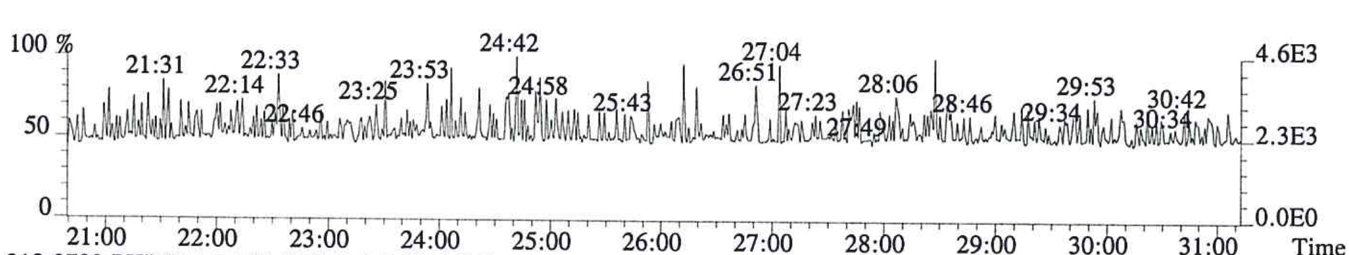
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18144.0,1.00%,F,T)



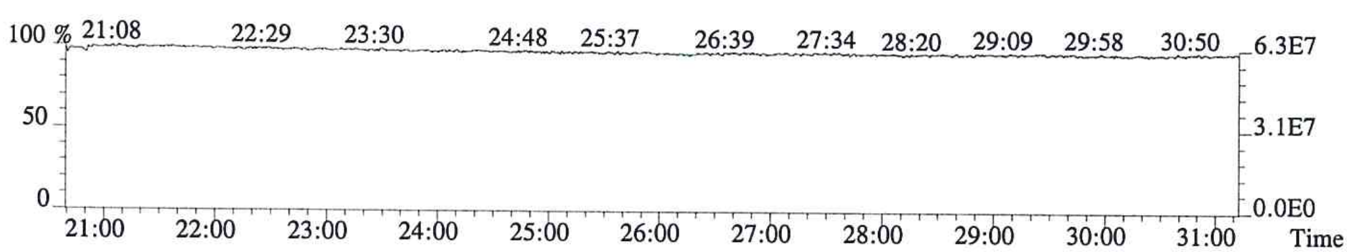
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



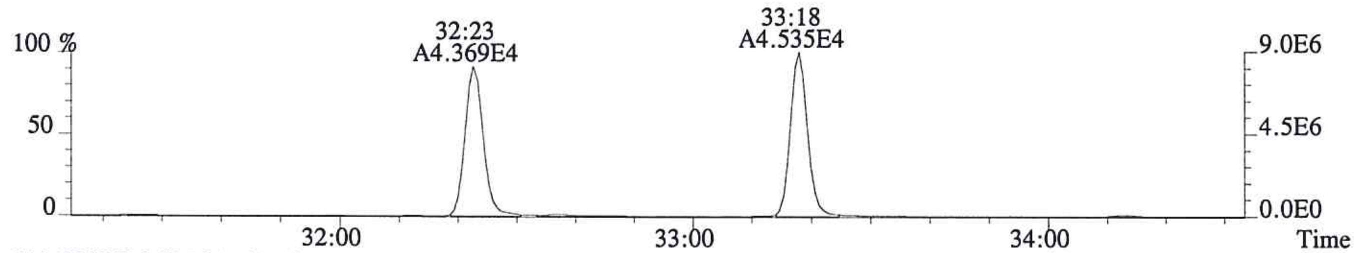
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



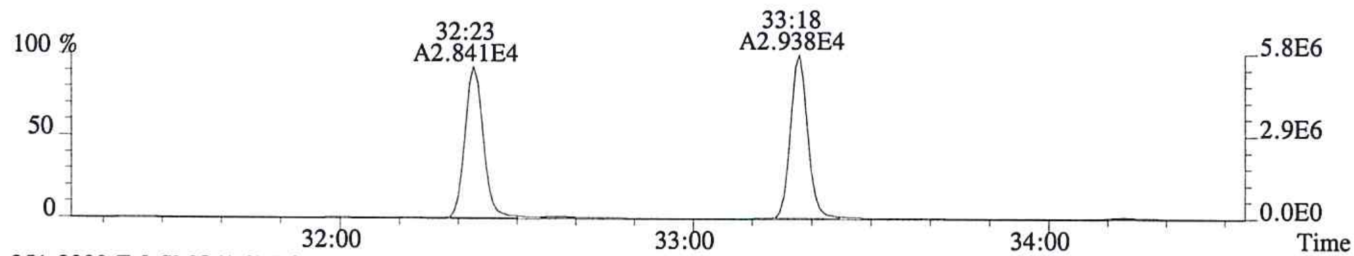
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



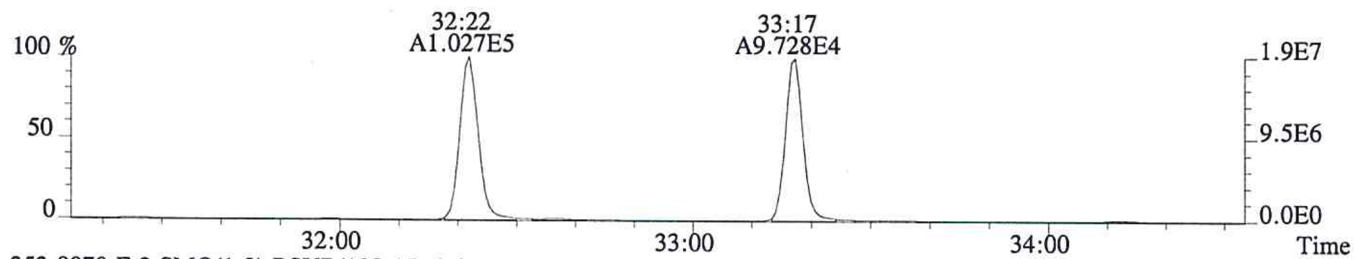
File:P604006 #1-299 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



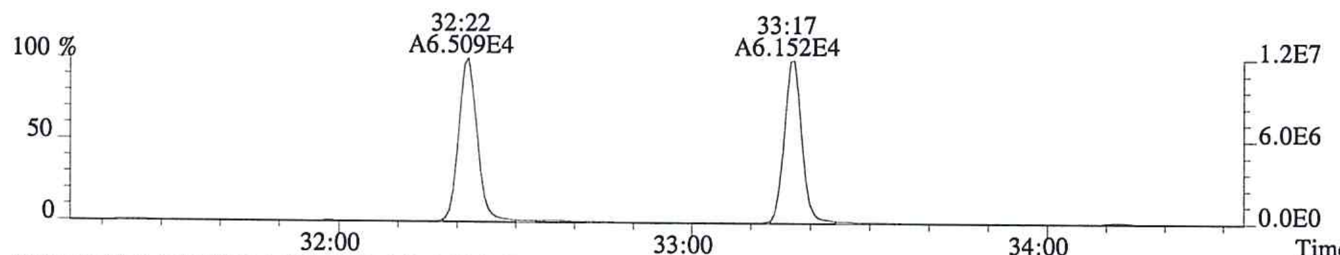
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11740.0,1.00%,F,T)



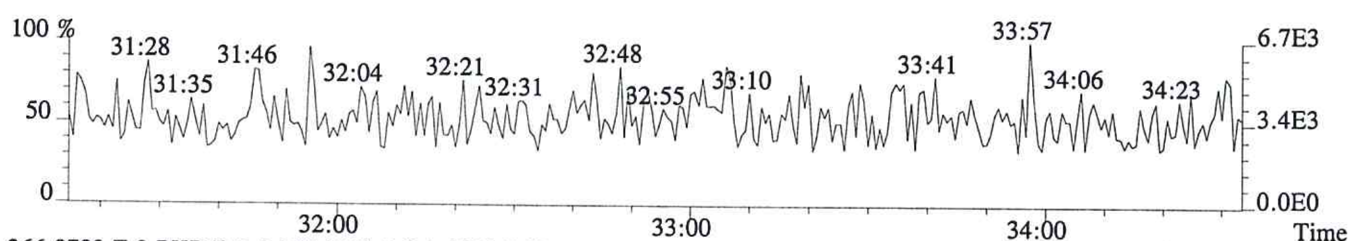
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18144.0,1.00%,F,T)



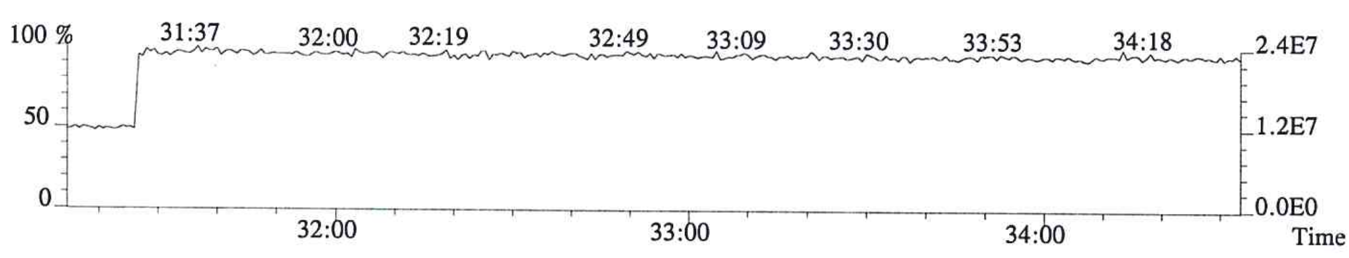
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



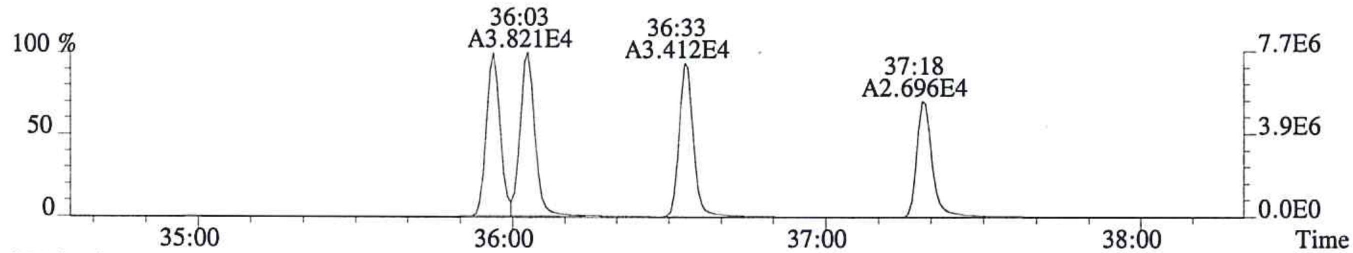
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



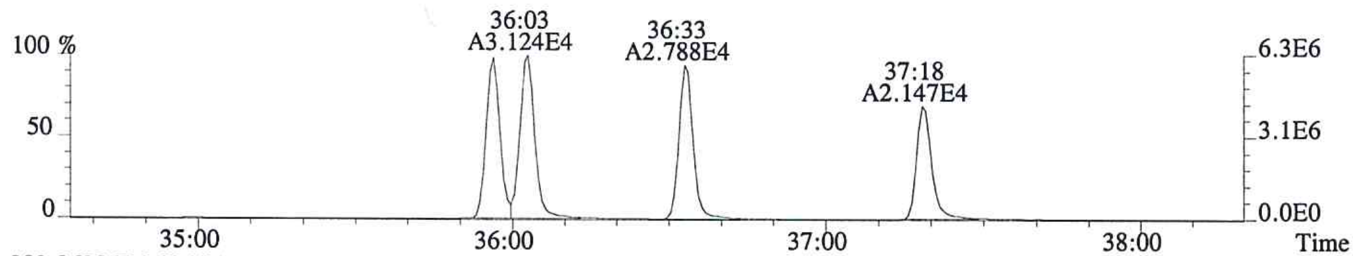
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



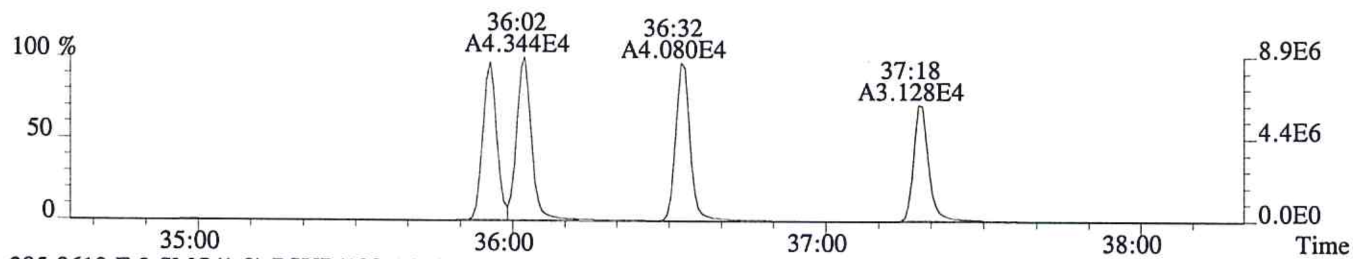
File:P604006 #1-337 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



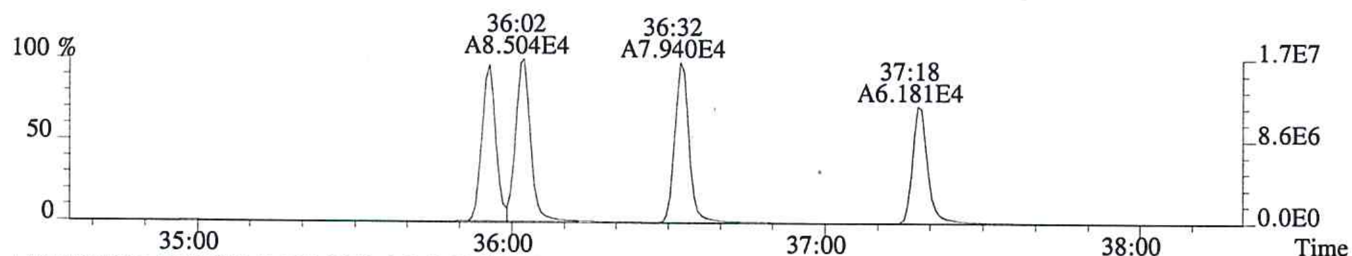
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



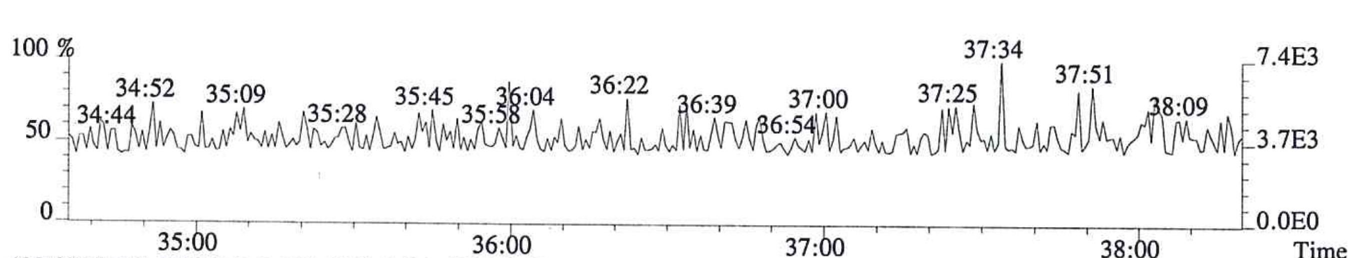
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



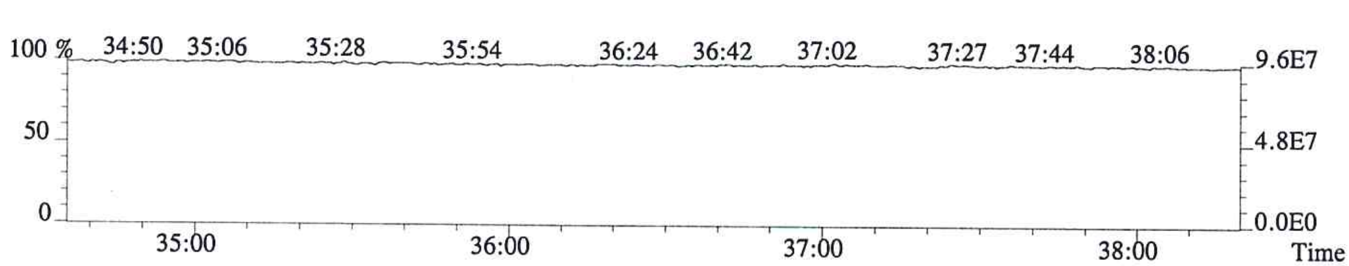
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



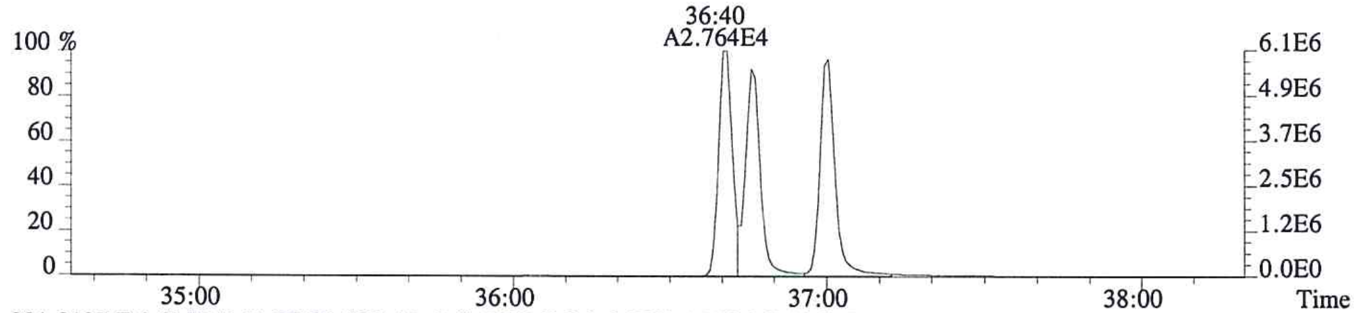
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



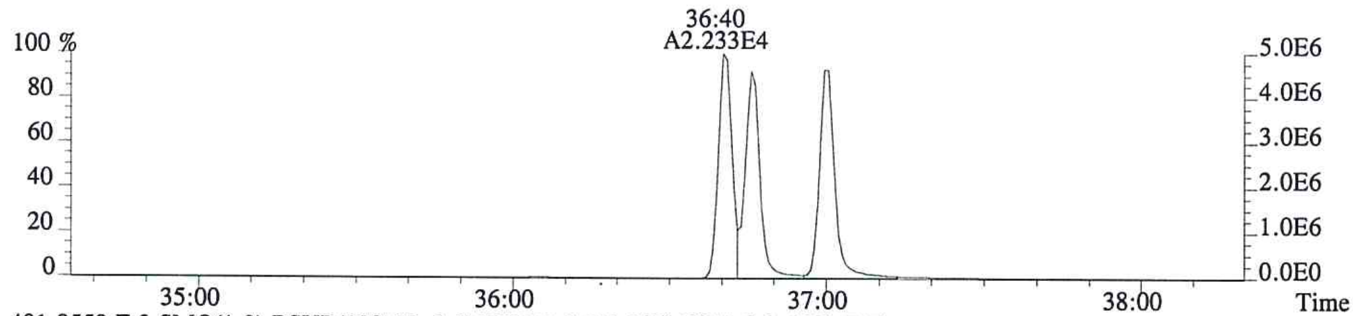
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



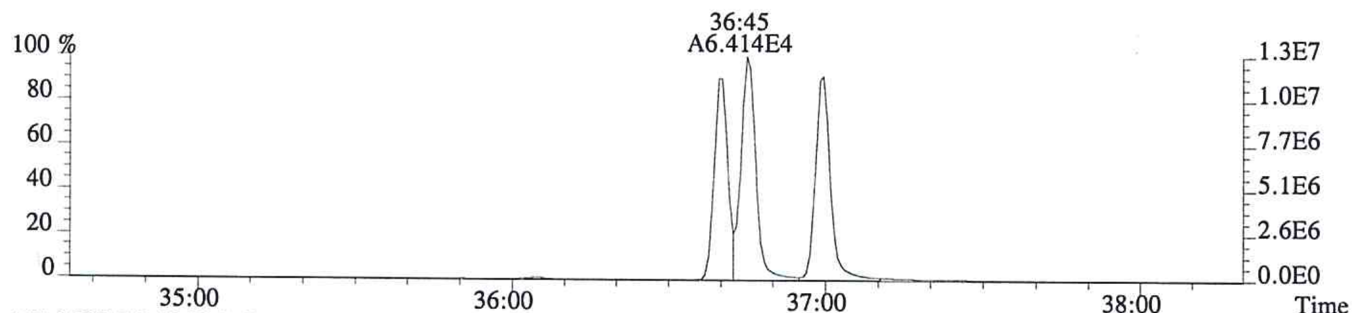
File:P604006 #1-337 Acq:26-JUN-2016 09:39:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



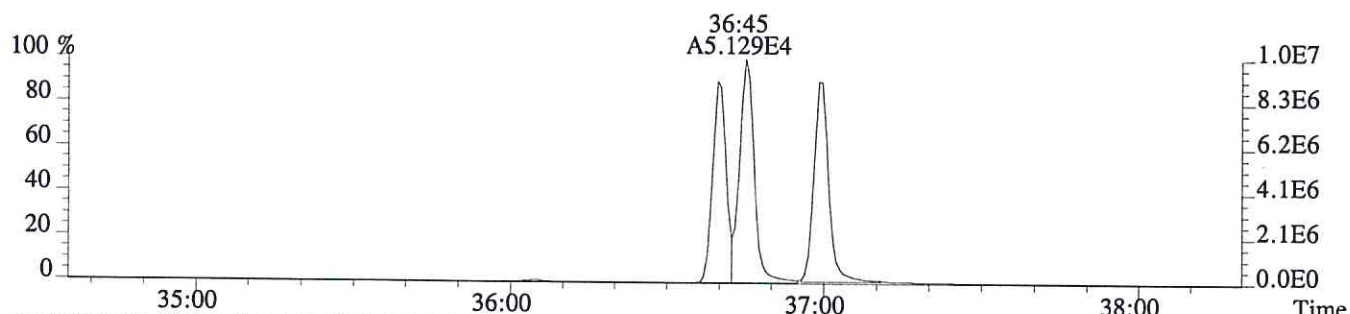
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



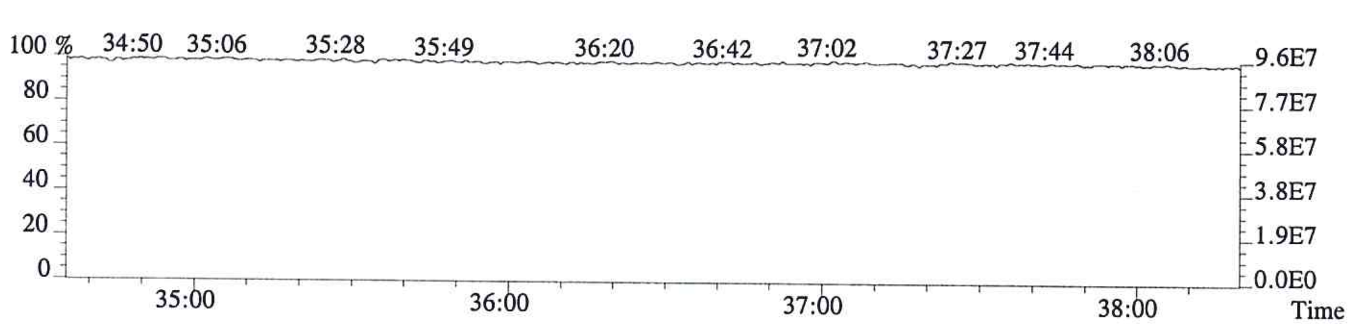
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3044.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Andy Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: SPME	Process Date: 06/25/2016					
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI					
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong					
Supervisor: Andy Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
included (and legible) for the entire sequence?						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?		√				1
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration	
Method: SPME	Process Date: 06/25/2016
Instrument Name: E-HRMS-08	Calibration File Name: P6-160625SPMEI
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description
1	Manual Integration on CS1 in order to correct inconsistent baseline determinations between primary and secondary ions. Before and after chromatograms provided. Where there is no after chromatograph provided, the modification reflects an update to reconcile response values between Sample Response Summary and chromatograph.

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 06/25/16

Init. Calib.Times: 09:17

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P603981	25-JUN-16	09:17:10
173636	CS1	P603982	25-JUN-16	10:06:18
173637	CS2	P603983	25-JUN-16	11:09:26
173638	CS3	P603984	25-JUN-16	11:55:54
173639	CS4	P603985	25-JUN-16	12:52:51
173640	CS5	P603986	25-JUN-16	13:45:46
CS3 2ND SOURCE	CS3 2ND SOURCE	P603988	25-JUN-16	15:21:10

FORM V PCDD-3 10/90

E1600326.R1

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Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20160625.SPL Page 1 of 2

Last Modified: Friday, July 01, 2016 08:45:44 Eastern Daylight Time

Printed: Friday, July 01, 2016 08:48:07 Eastern Daylight Time Page Position (1, 1)

OPUS4: P6-160625SPMEI opus 4: P603988 res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	06/25/16	09:17	P603981	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKL	HRMS check 09:11
2		10:06	P603982	173636	CS1	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:09	P603983	173637	CS2	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		11:55	P603984	173638	CS3	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		12:52	P603985	173639	CS4	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		13:45	P603986	173640	CS5	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		14:32	P603987	NONANE	NONANE	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:21	P603988	CS3 2ND SOURCE	CS3 2ND SOURCE	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		16:34	P603989	NONANE	NONANE	Tray1:9	EPA1613_ALS	Dioxin_ALS		HRMS check 16:28
10			---	---	---	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11			---	---	---	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12			---	---	---	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13			---	---	---	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20			---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS		
21			---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS		
22			---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS		
23			---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS		
24			---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS		
25			---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS		
26			---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS		
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

Processed: 06/25/16 JC

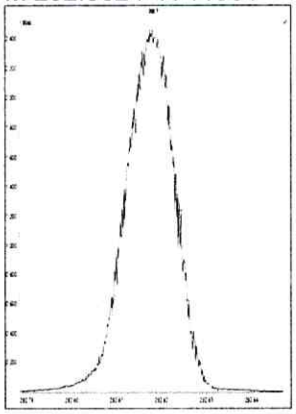
Logbook Form updated 07/01/16 to input lab sample ID's

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

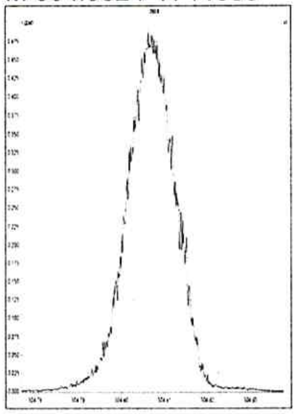
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:11:20 Eastern Daylight Time

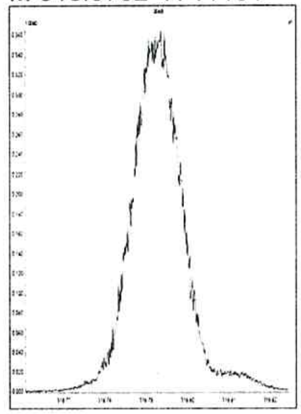
M 292.9824 R 11961



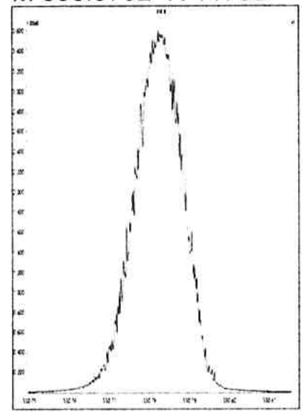
M 304.9824 R 11908



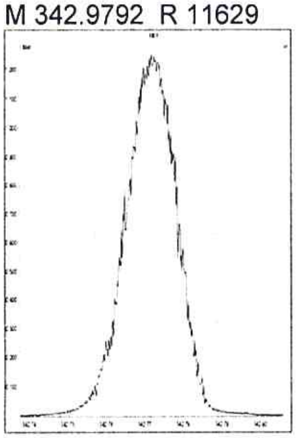
M 318.9792 R 11161



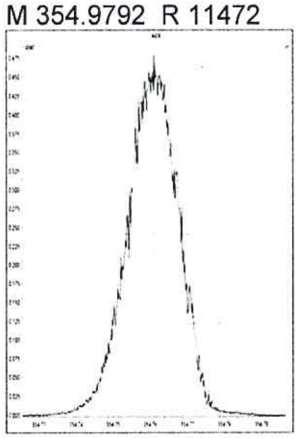
M 330.9792 R 11736



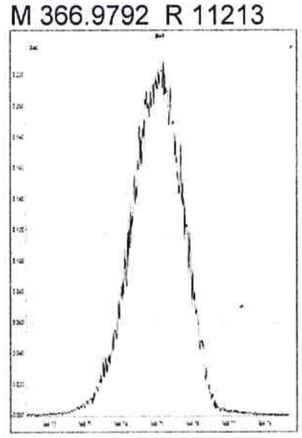
M 342.9792 R 11629



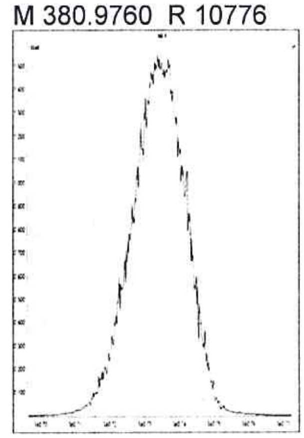
M 354.9792 R 11472



M 366.9792 R 11213



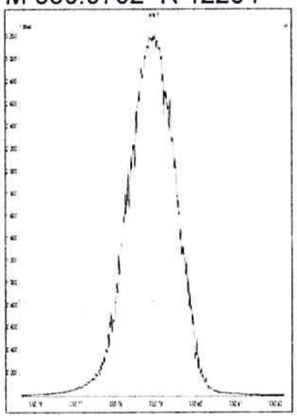
M 380.9760 R 10776



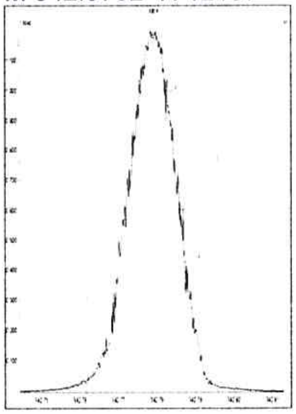
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:12:33 Eastern Daylight Time

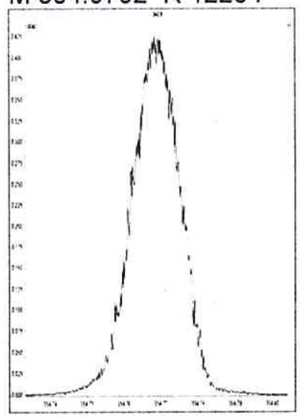
M 330.9792 R 12254



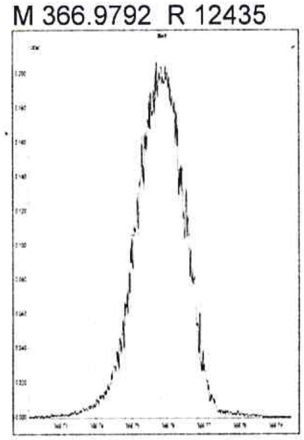
M 342.9792 R 12197



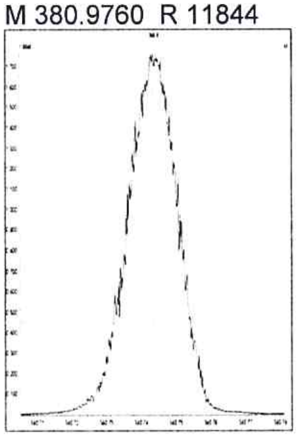
M 354.9792 R 12254



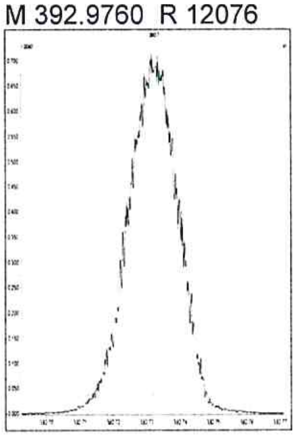
M 366.9792 R 12435



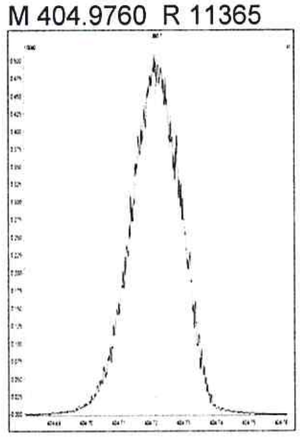
M 380.9760 R 11844



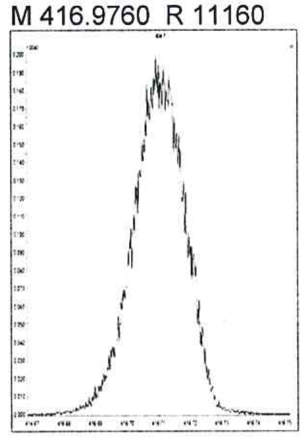
M 392.9760 R 12076



M 404.9760 R 11365



M 416.9760 R 11160

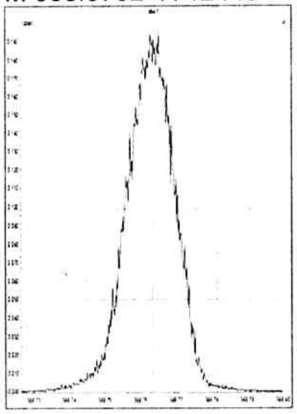


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

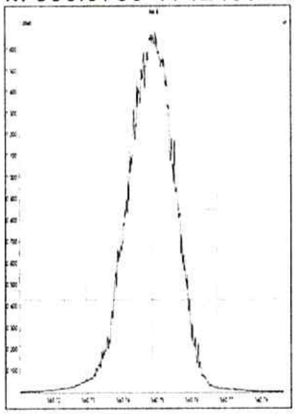
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:13:42 Eastern Daylight Time

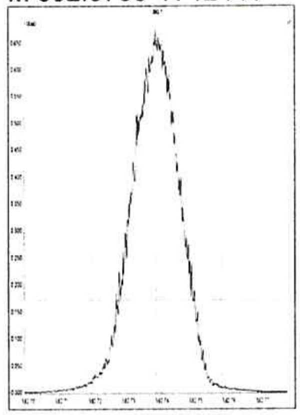
M 366.9792 R 12440



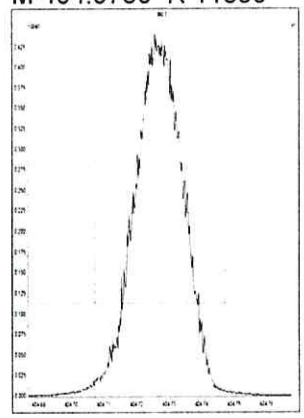
M 380.9760 R 12439



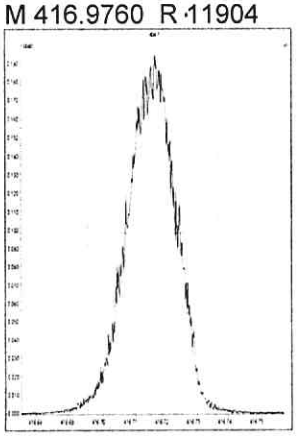
M 392.9760 R 12441



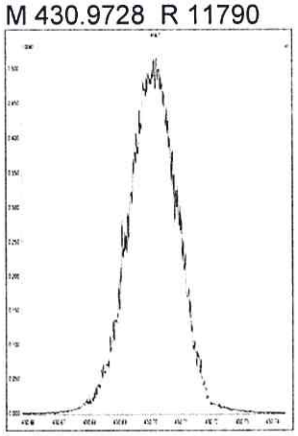
M 404.9760 R 11850



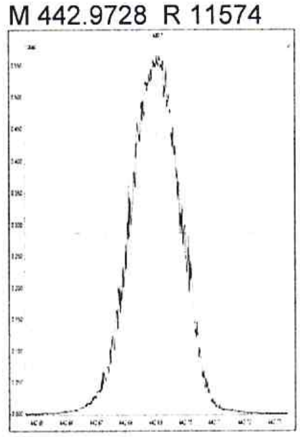
M 416.9760 R 11904



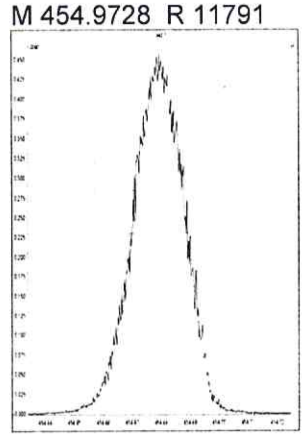
M 430.9728 R 11790



M 442.9728 R 11574



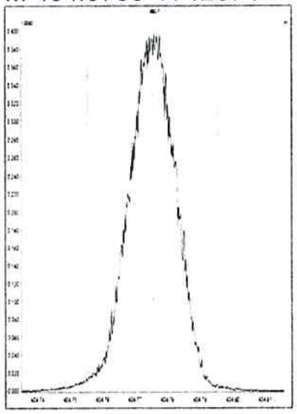
M 454.9728 R 11791



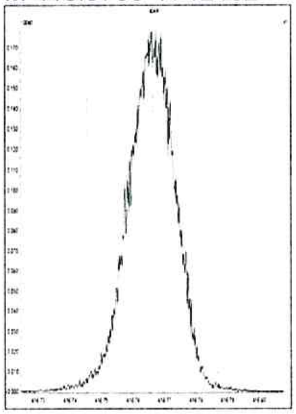
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:14:56 Eastern Daylight Time

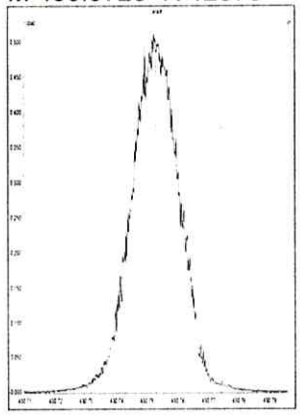
M 404.9760 R 12374



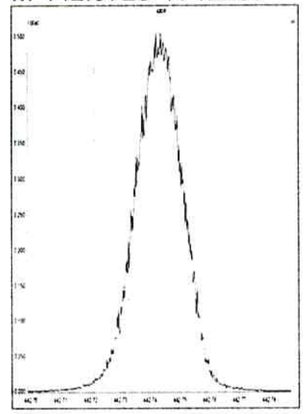
M 416.9760 R 12132



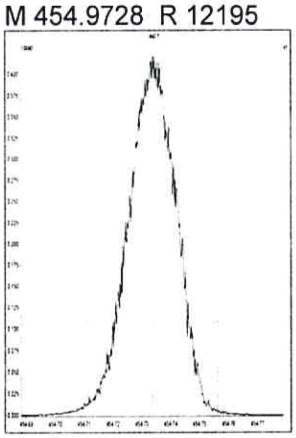
M 430.9728 R 12376



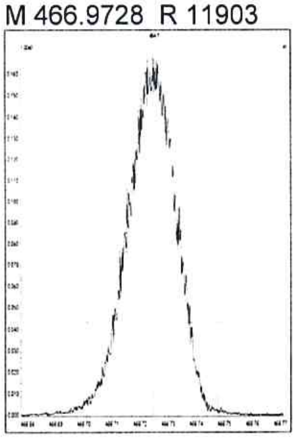
M 442.9728 R 12257



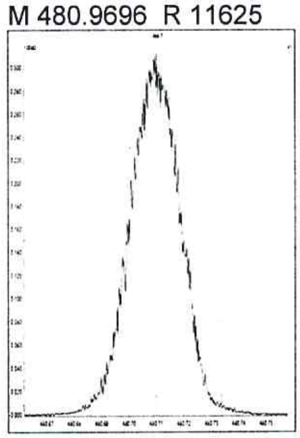
M 454.9728 R 12195



M 466.9728 R 11903



M 480.9696 R 11625

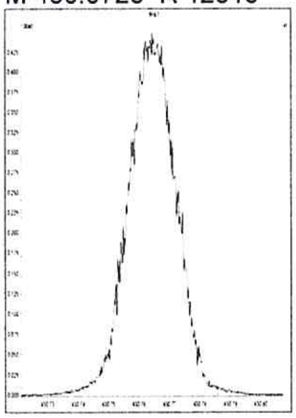


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

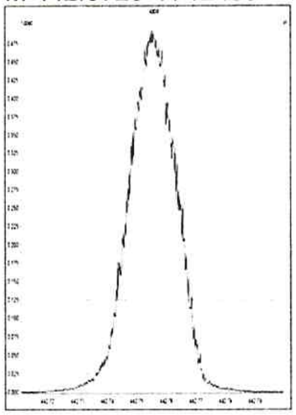
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 09:16:07 Eastern Daylight Time

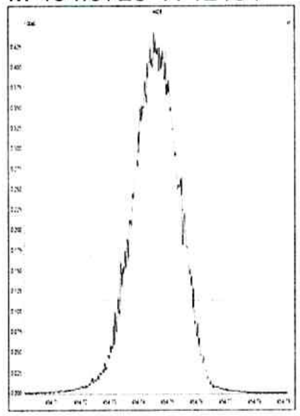
M 430.9728 R 12315



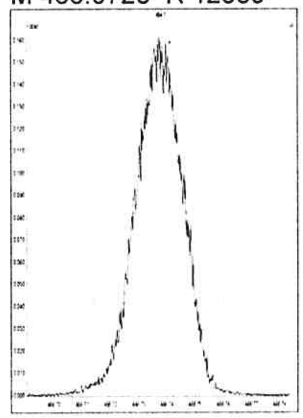
M 442.9728 R 12436



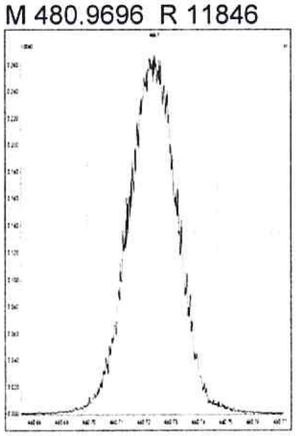
M 454.9728 R 12191



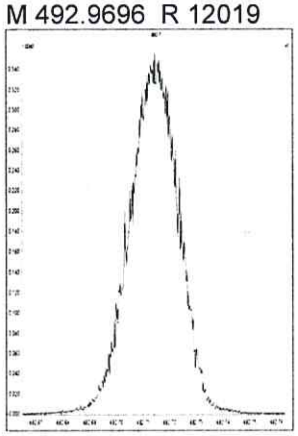
M 466.9728 R 12689



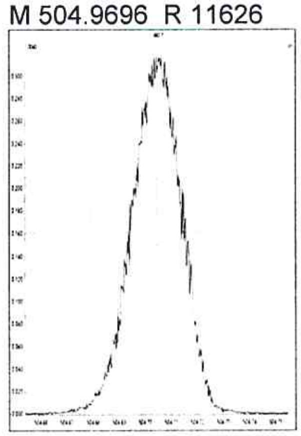
M 480.9696 R 11846



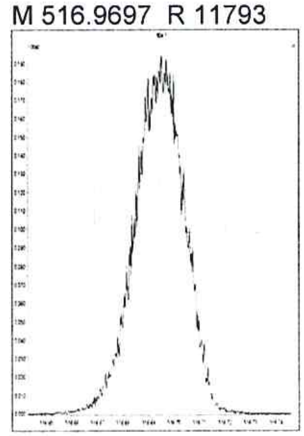
M 492.9696 R 12019



M 504.9696 R 11626



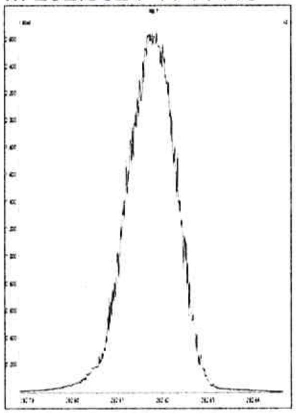
M 516.9697 R 11793



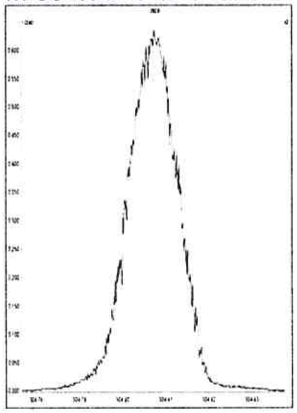
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:28:26 Eastern Daylight Time

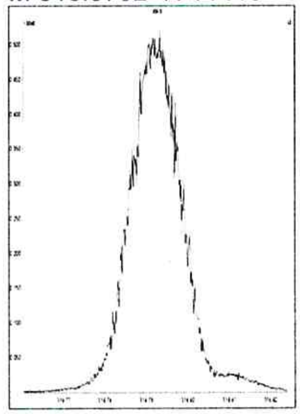
M 292.9824 R 11415



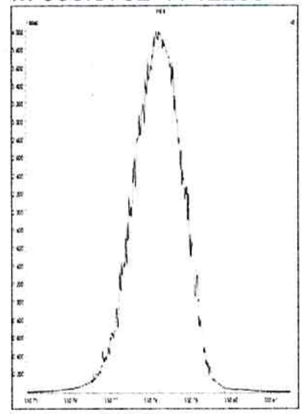
M 304.9824 R 12074



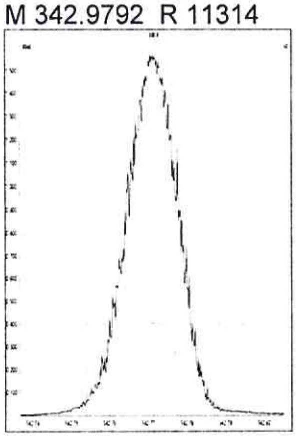
M 318.9792 R 11416



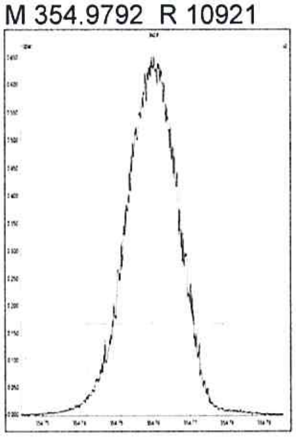
M 330.9792 R 12259



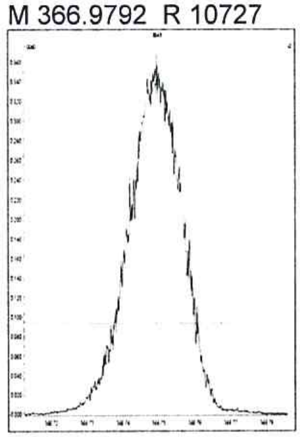
M 342.9792 R 11314



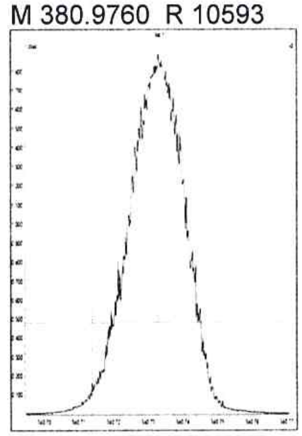
M 354.9792 R 10921



M 366.9792 R 10727



M 380.9760 R 10593

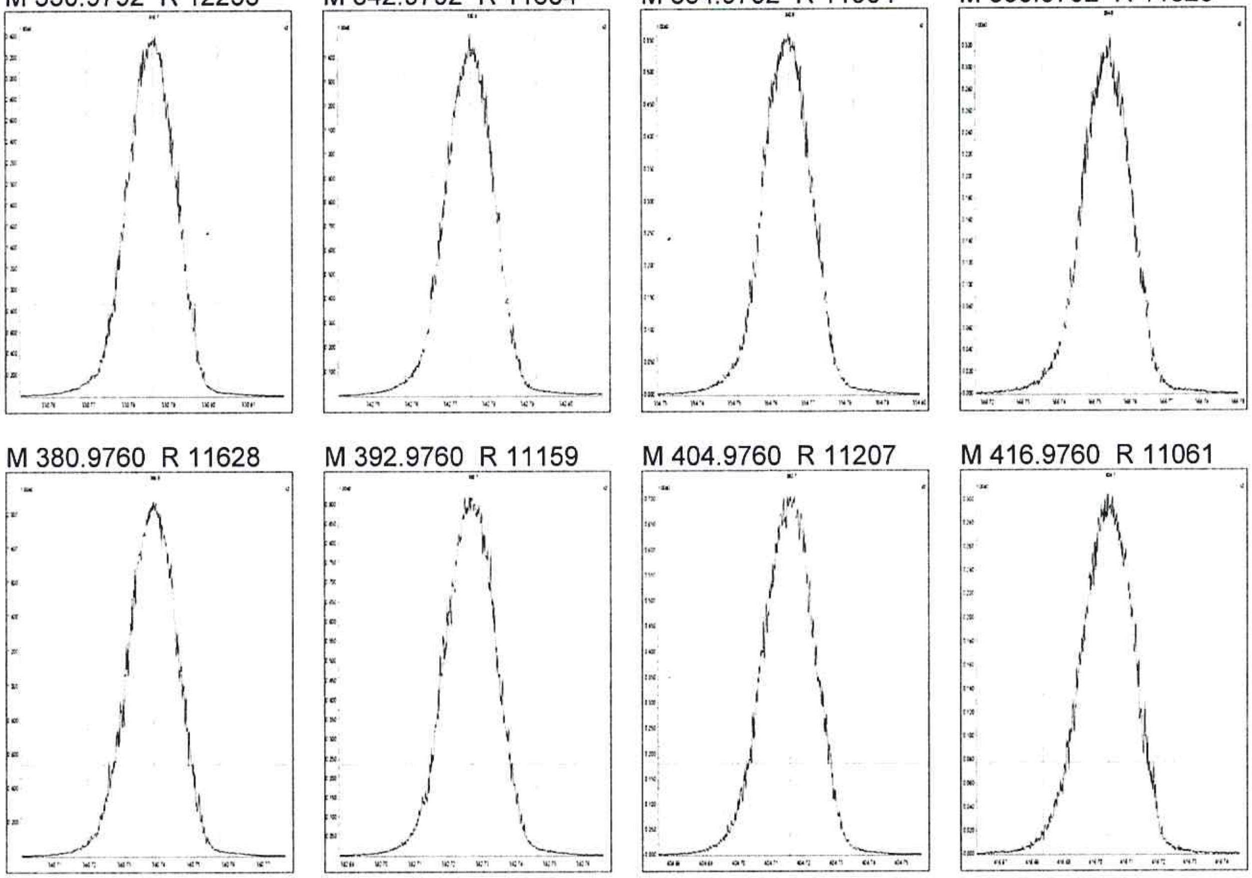


File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:29:39 Eastern Daylight Time

M 330.9792 R 12253 M 342.9792 R 11684 M 354.9792 R 11904 M 366.9792 R 11523

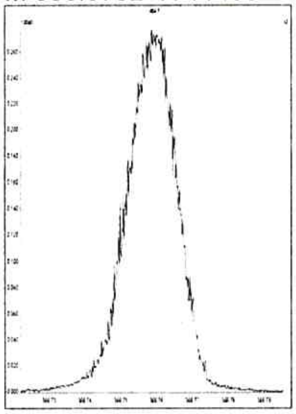
M 380.9760 R 11628 M 392.9760 R 11159 M 404.9760 R 11207 M 416.9760 R 11061



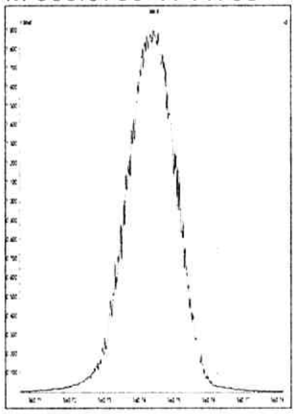
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:30:52 Eastern Daylight Time

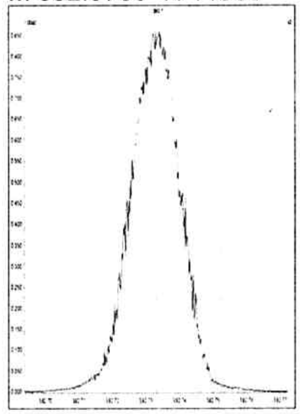
M 366.9792 R 11465



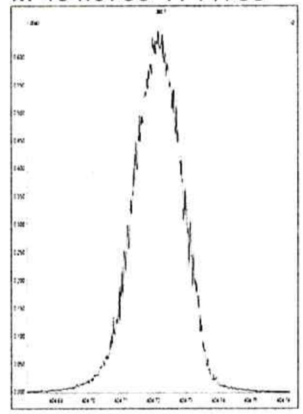
M 380.9760 R 11738



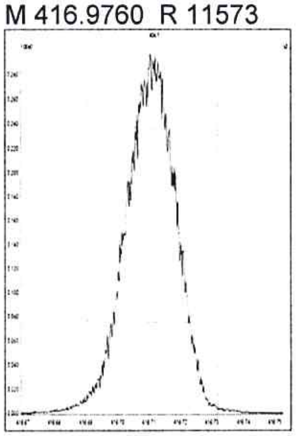
M 392.9760 R 11903



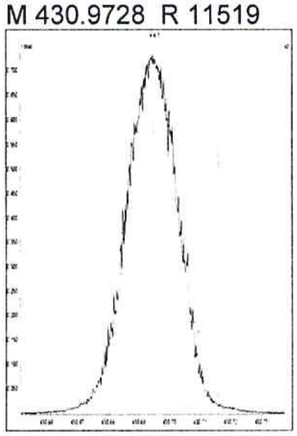
M 404.9760 R 11738



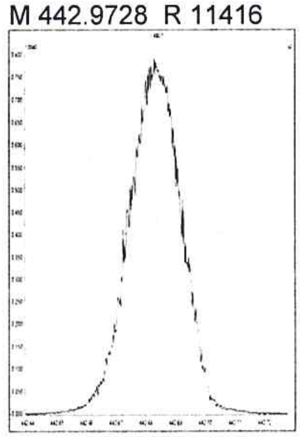
M 416.9760 R 11573



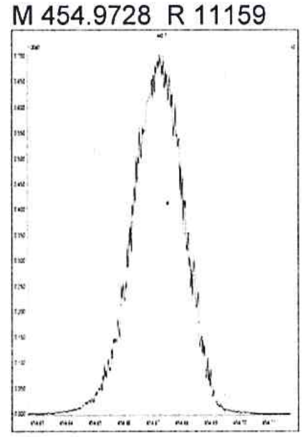
M 430.9728 R 11519



M 442.9728 R 11416



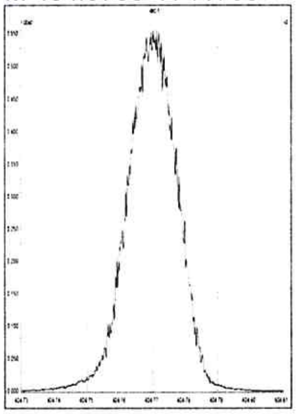
M 454.9728 R 11159



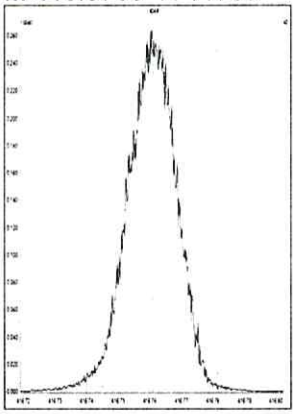
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:32:13 Eastern Daylight Time

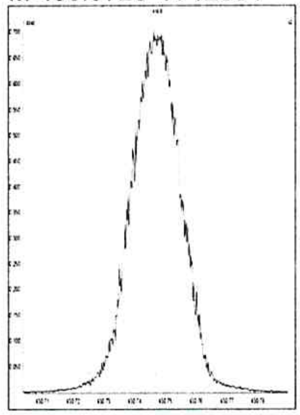
M 404.9760 R 11735



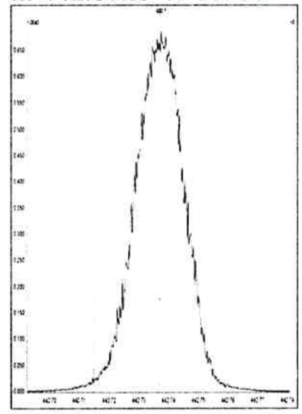
M 416.9760 R 11789



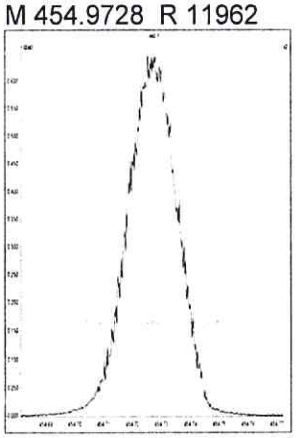
M 430.9728 R 12081



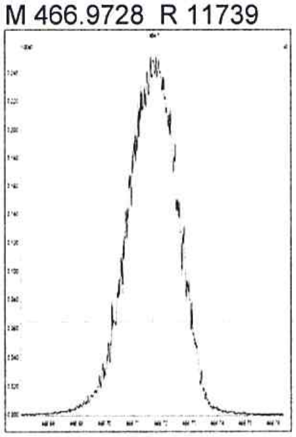
M 442.9728 R 11963



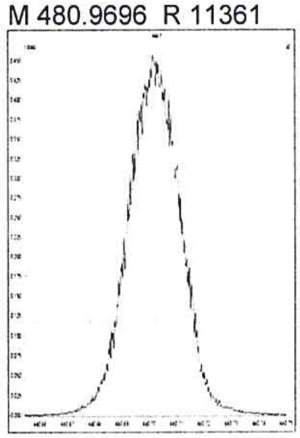
M 454.9728 R 11962



M 466.9728 R 11739



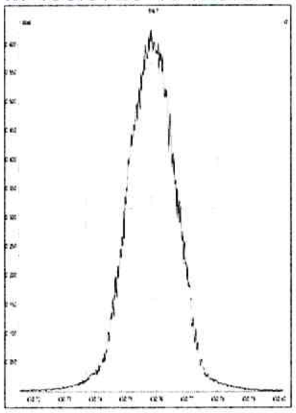
M 480.9696 R 11361



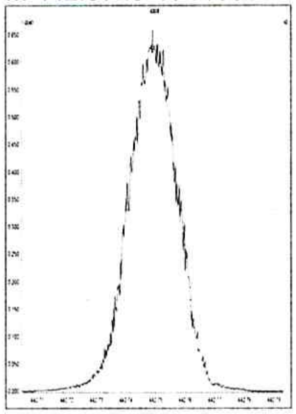
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, June 25, 2016 16:33:28 Eastern Daylight Time

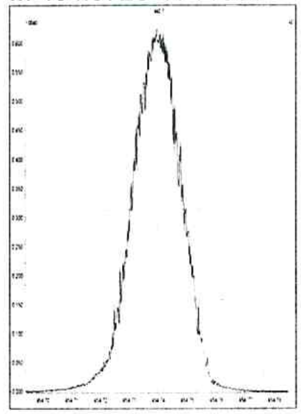
M 430.9728 R 12376



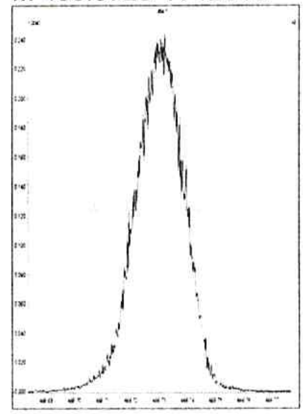
M 442.9728 R 11960



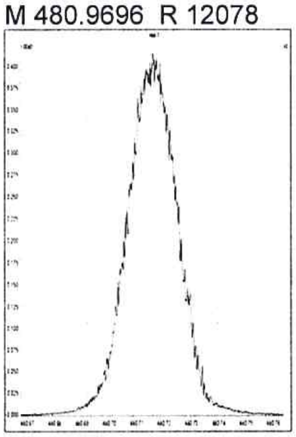
M 454.9728 R 11905



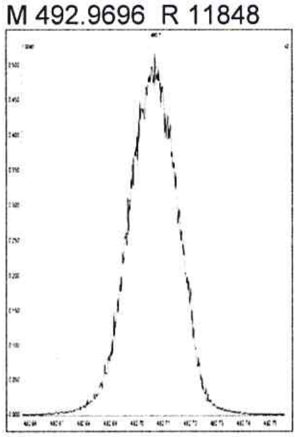
M 466.9728 R 12018



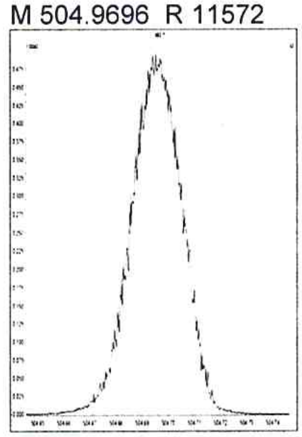
M 480.9696 R 12078



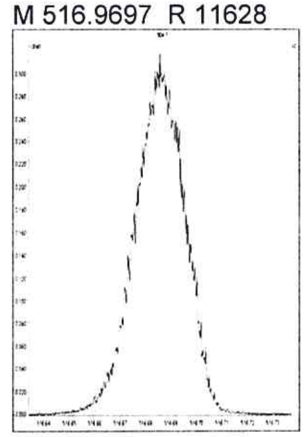
M 492.9696 R 11848



M 504.9696 R 11572



M 516.9697 R 11628



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

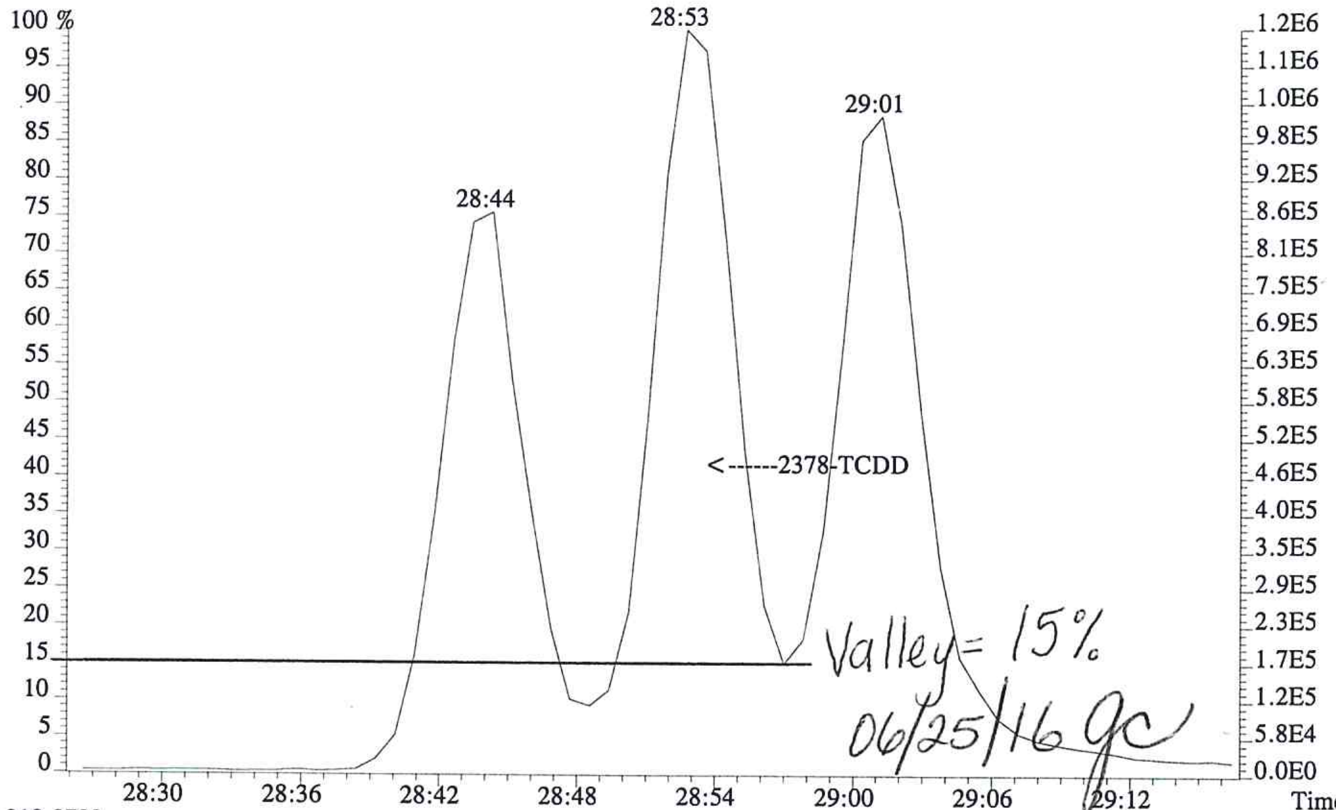
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX   Case No.: ________   SDG No.:
GC Column: DB-5MSUI   ID: 0.25 (mm)   Lab File ID: P603981
Date Analyzed: 25-JUN-2016
Time Analyzed: 09:17:10

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:42	30:05
TCDD	25:33	29:54
PeCDF	29:58	34:14
PeCDD	31:30	33:58
HxCDF	34:50	37:22
HxCDD	35:22	36:57
HpCDF	38:33	39:58
HpCDD	38:47	39:28

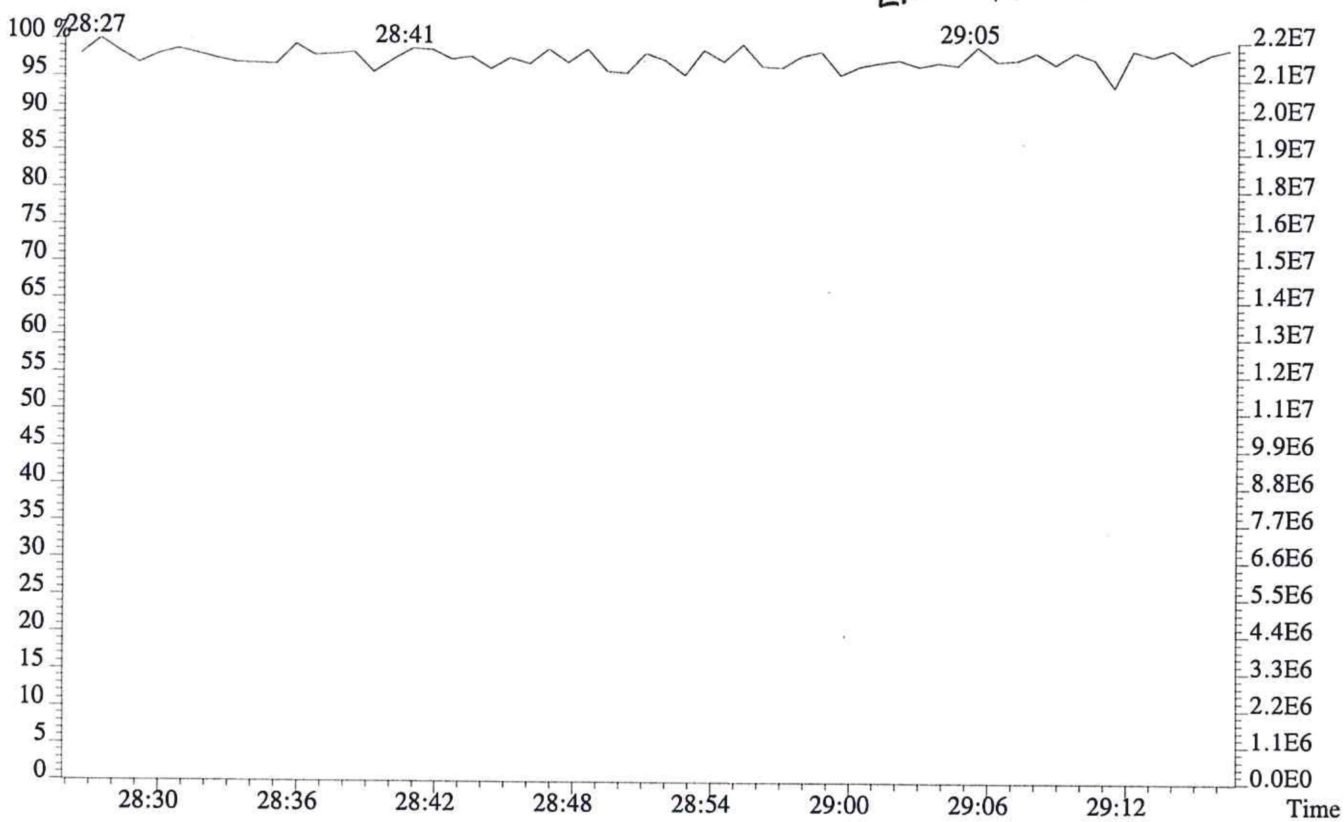
% Valley 2378-TCDD: 15 %

File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

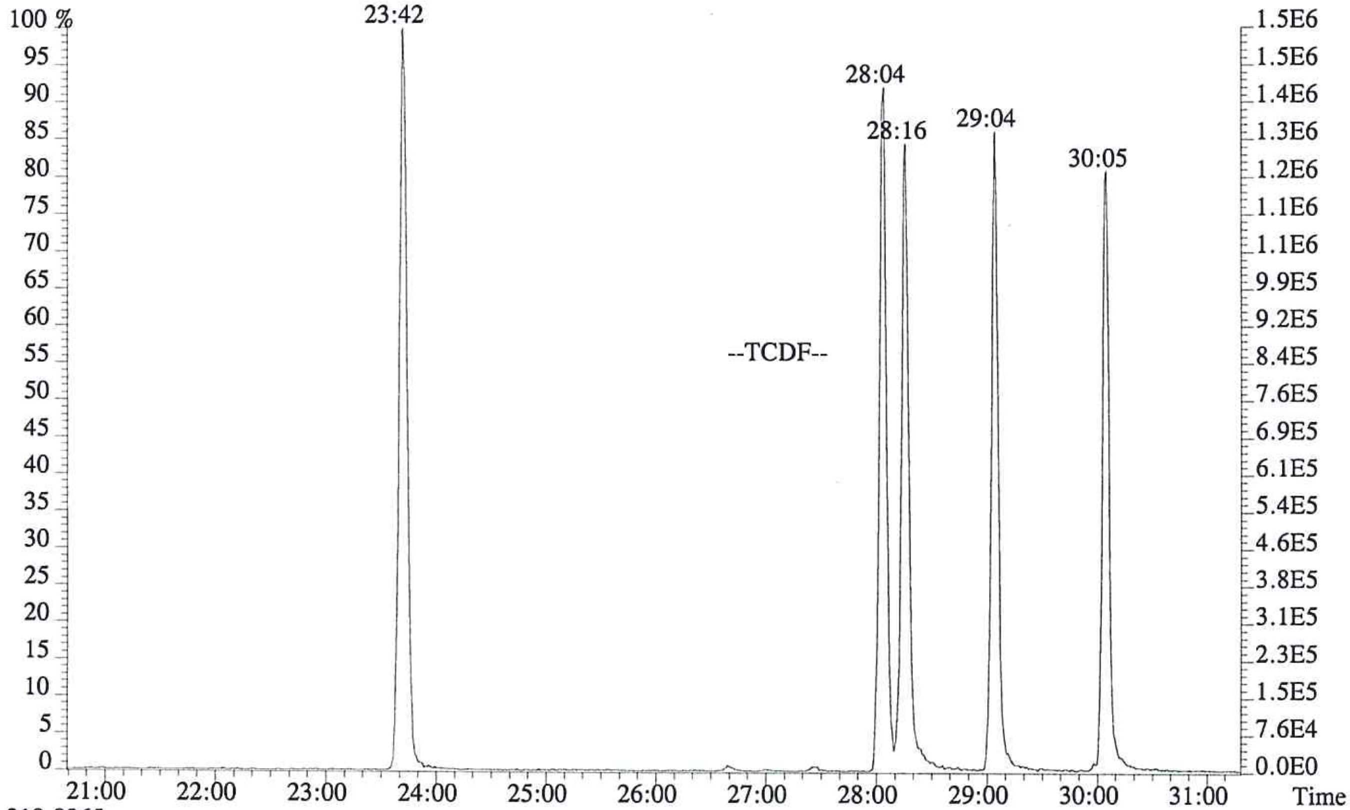


318.9792

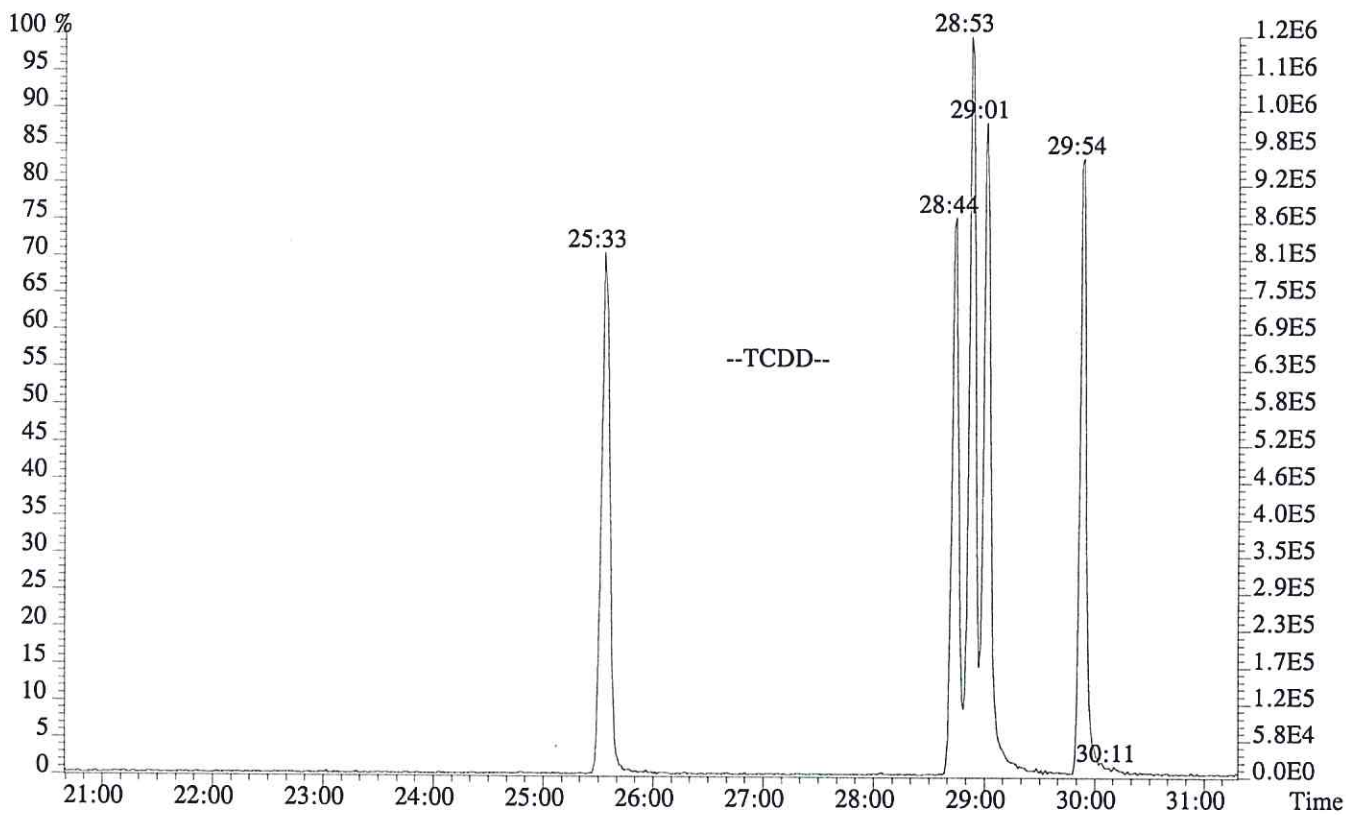
LKL 07/05/16



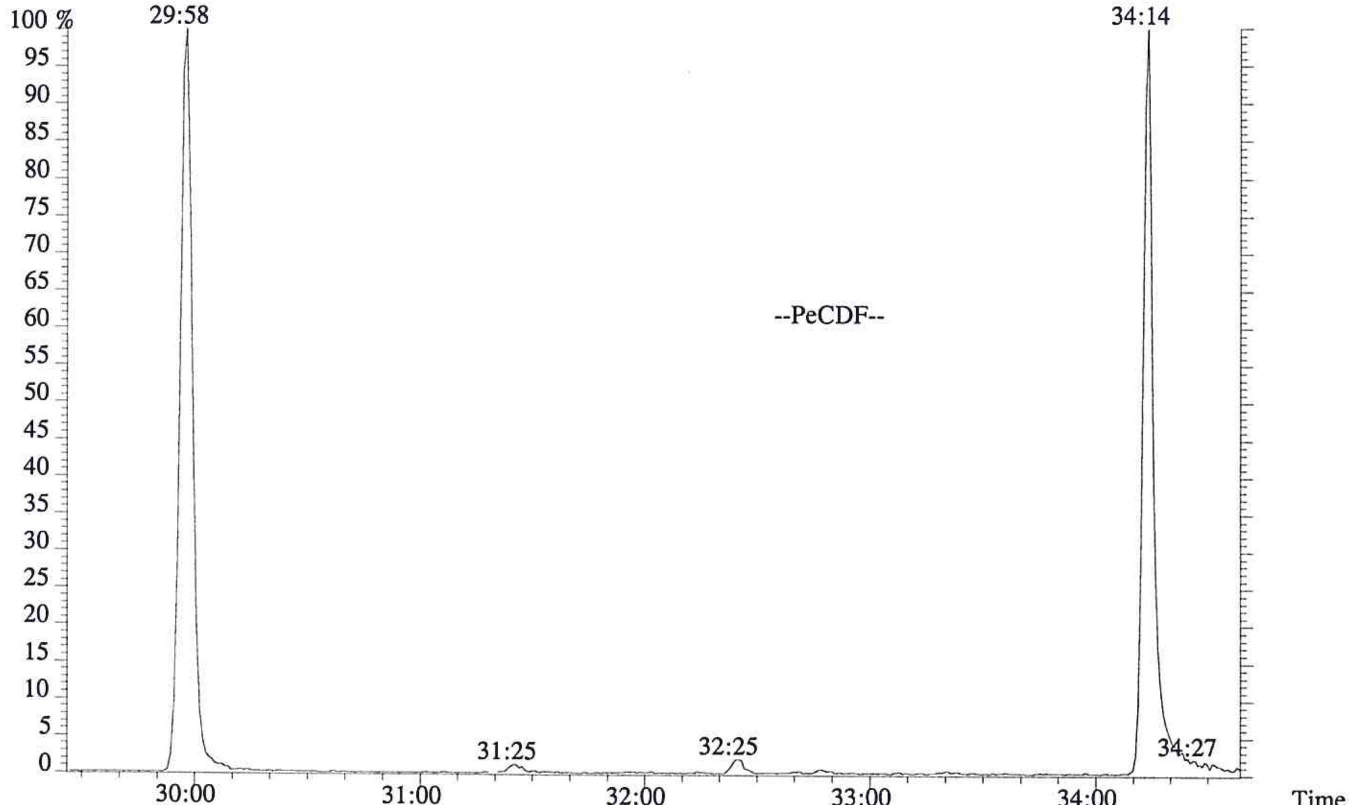
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



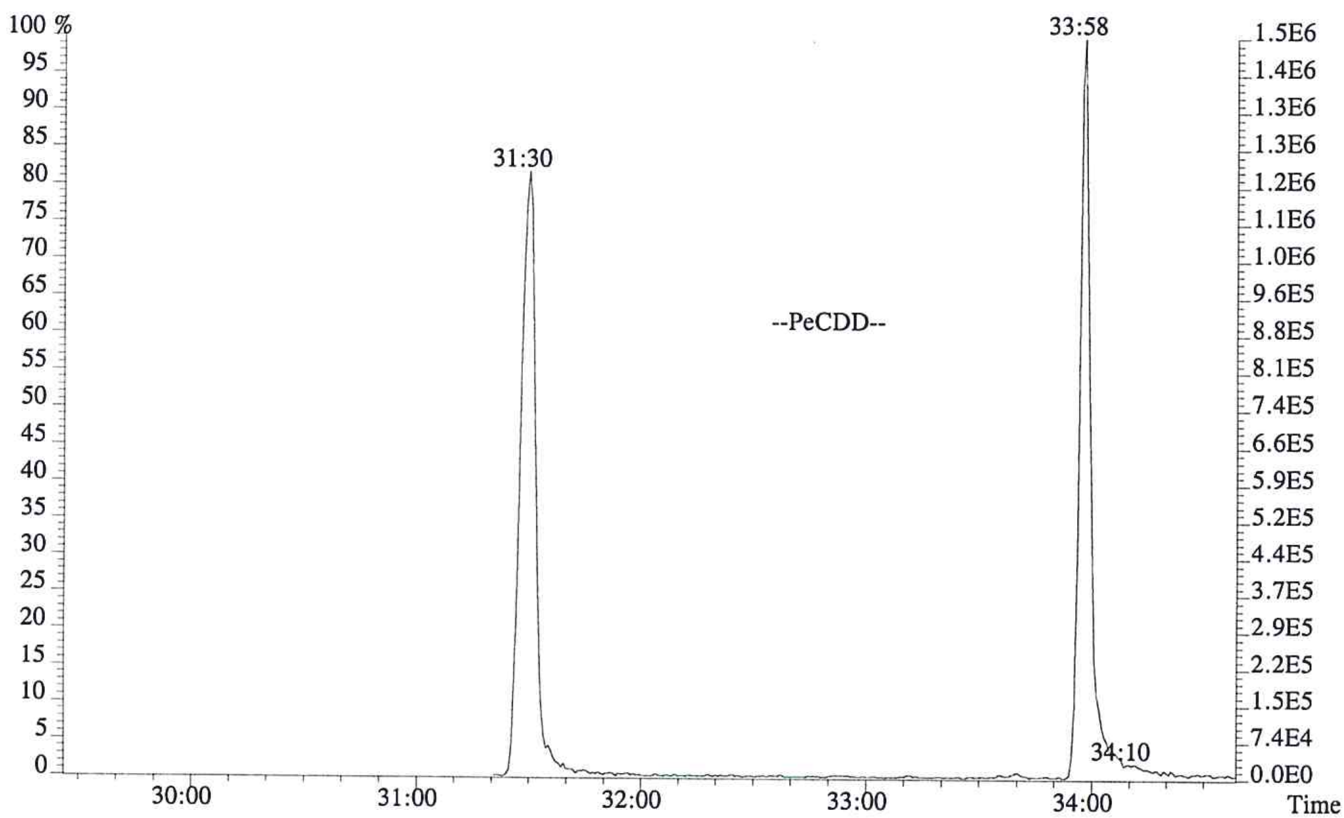
319.8965



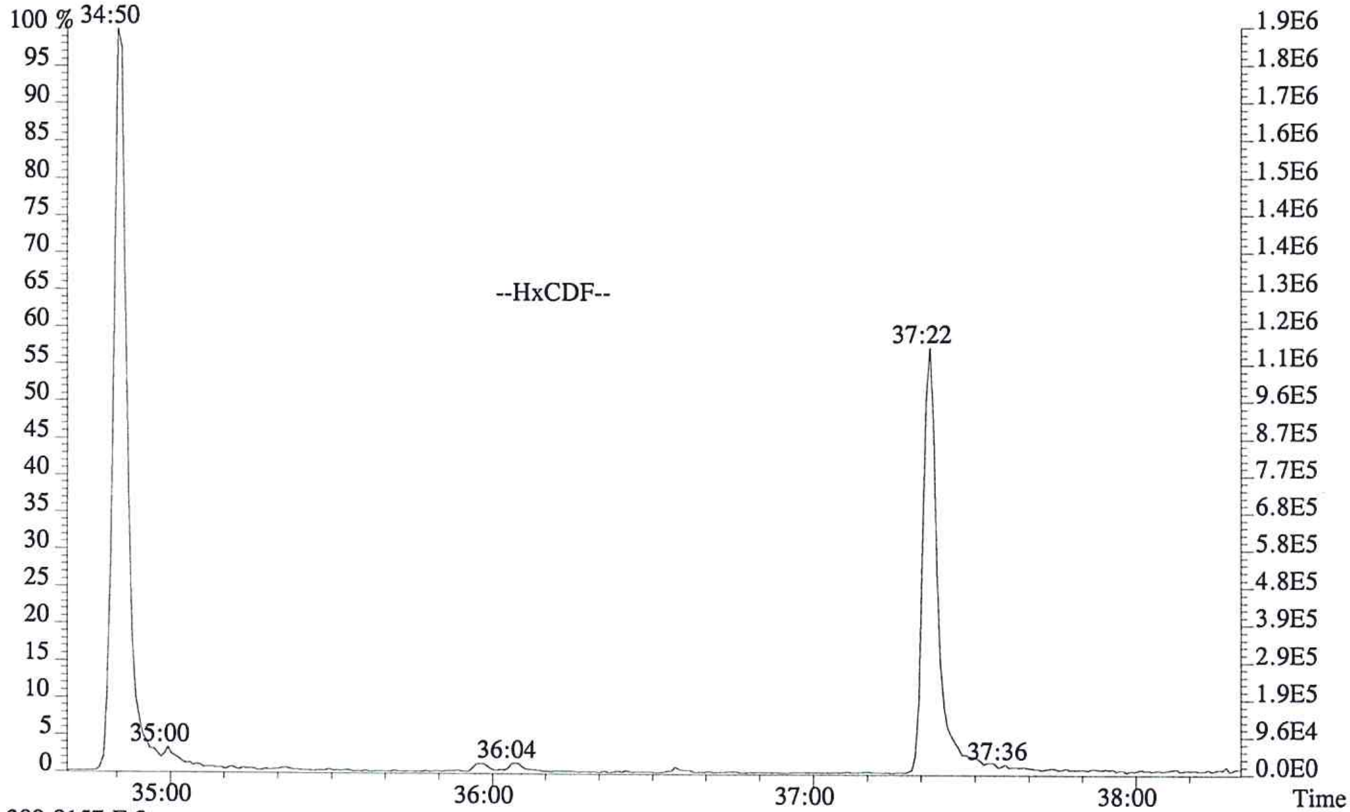
File:P603981 #1-756 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



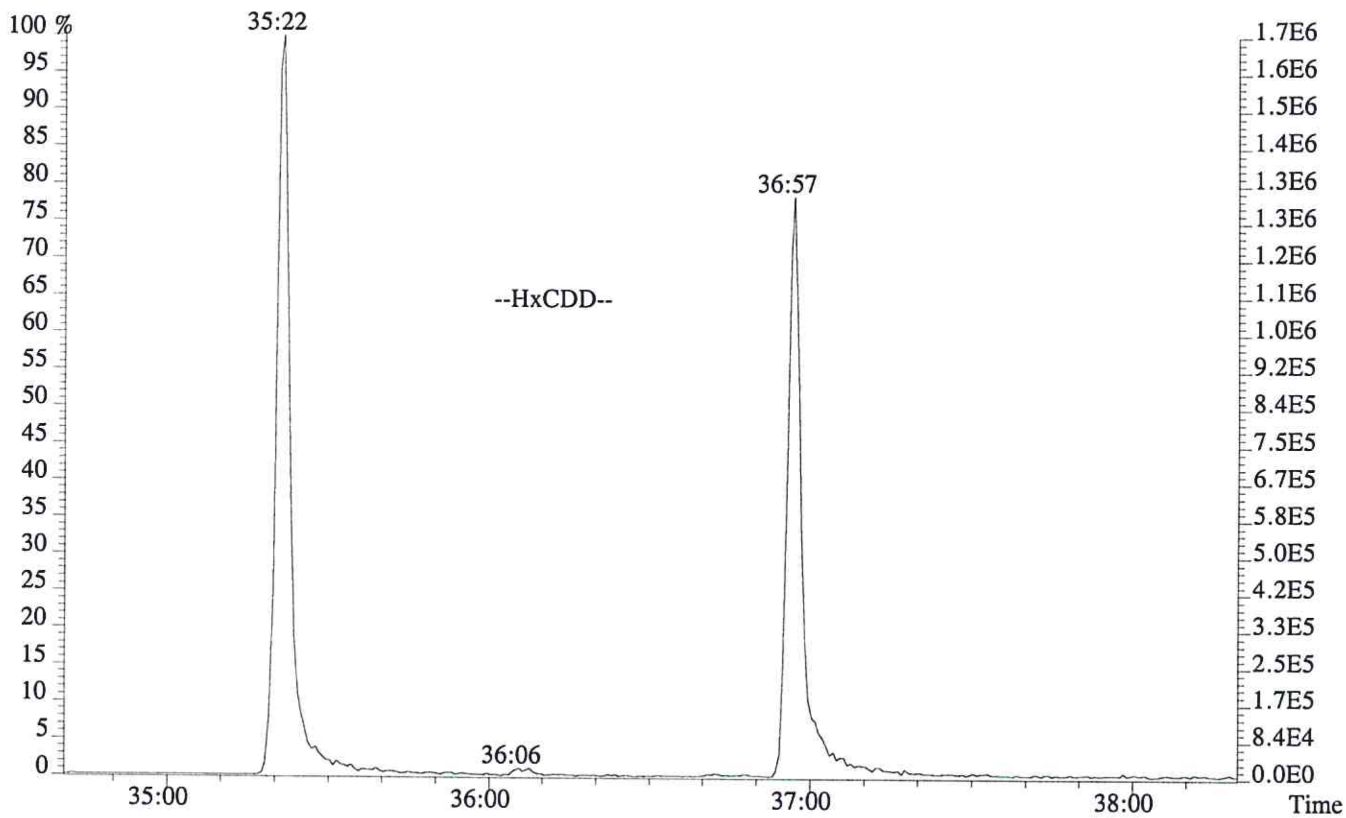
355.8546 F:2



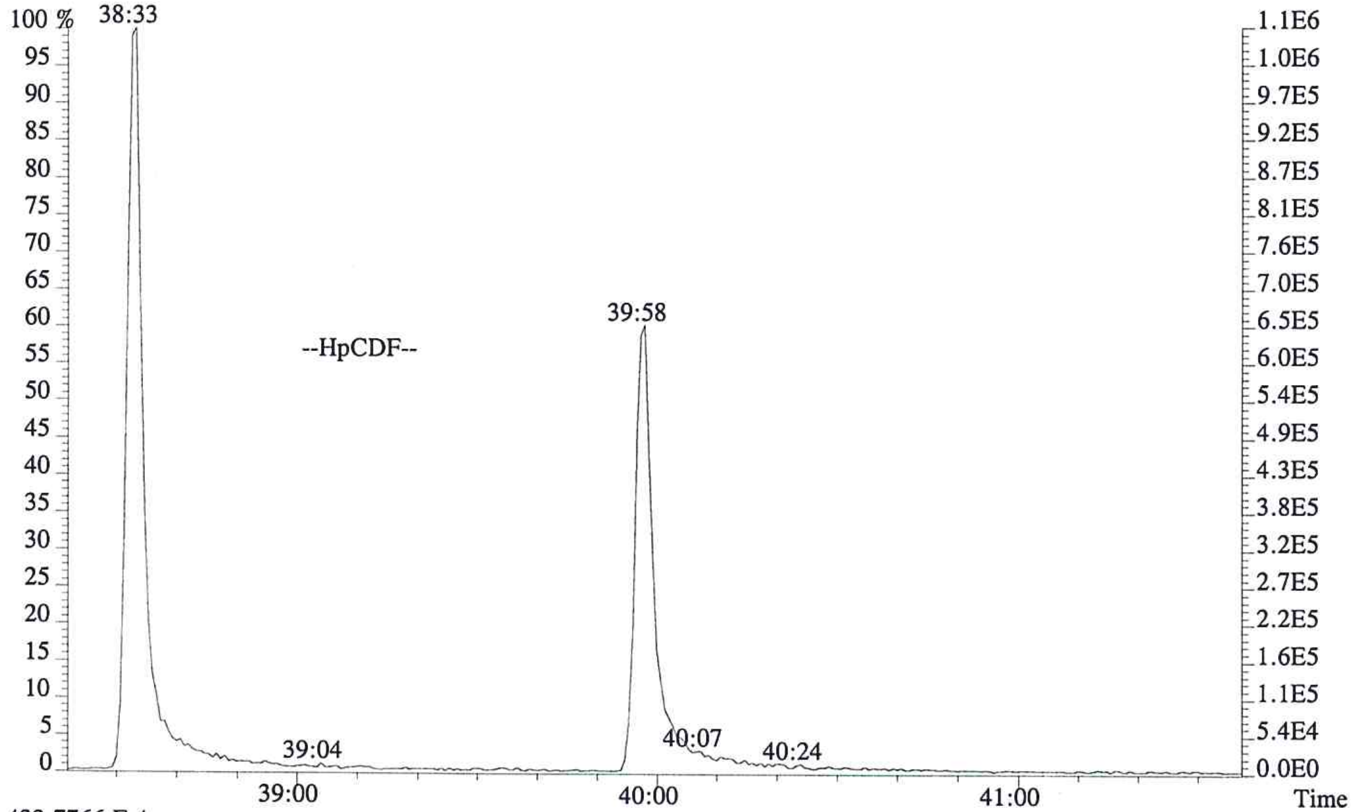
File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



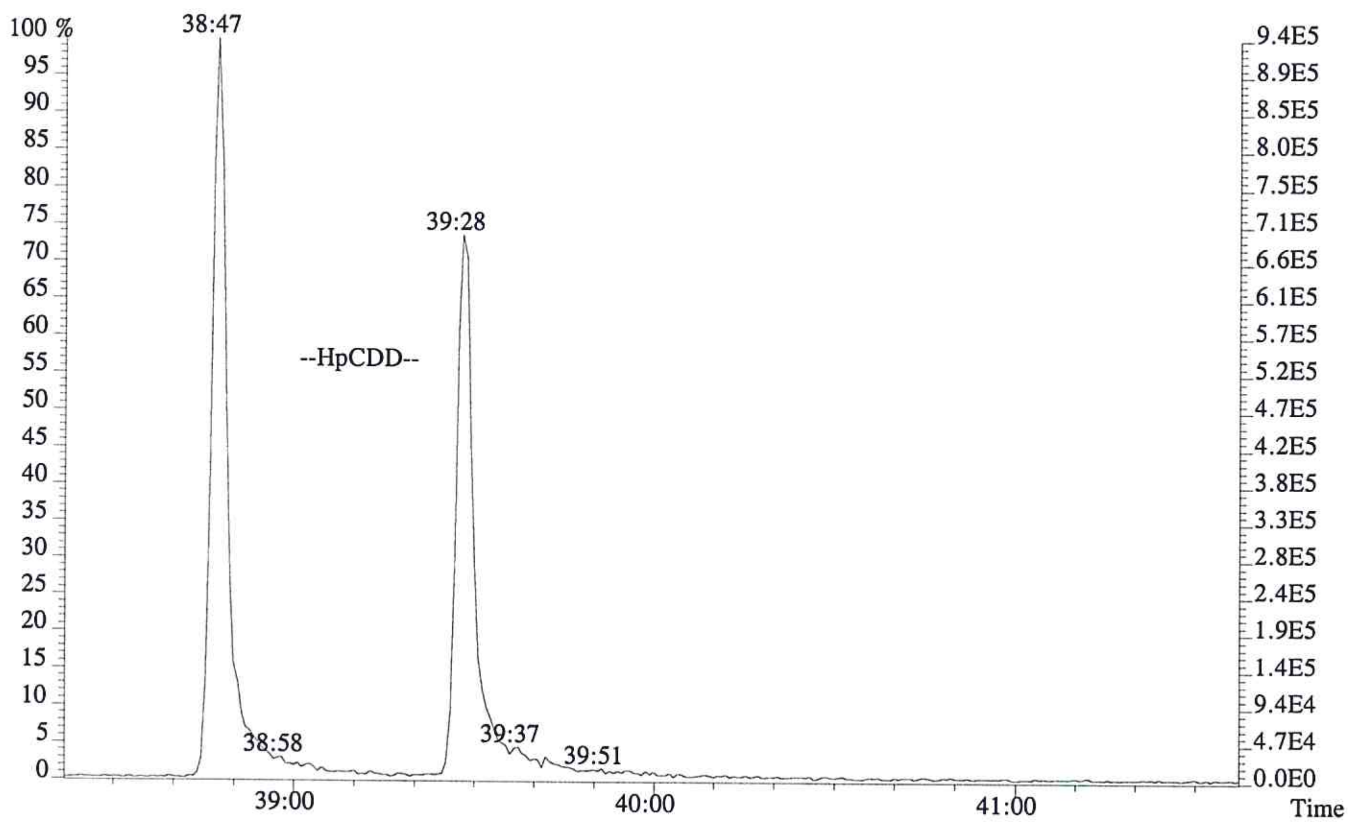
389.8157 F:3



File:P603981 #1-329 Acq:25-JUN-2016 09:17:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



SPME
5DFA5
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental   Contract No.:
Lab Code: ALSTX   Case No.:   TO No.:   SDG No.:
GC Column: DB-5MSUI   ID: 0.25(mm)   Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16   Method: SPME
Init. Calib. Time.: 09:17

	RR/RRF						MEAN	
Target Analytes	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	1.16	1.01	1.00	1.02	1.06	1.05	6.57	+/-20%
2,3,7,8-TCDD	0.95	0.91	0.97	0.97	0.98	0.96	2.86	+/-20%
2,3,4,7,8-PeCDF	0.89	0.91	0.93	0.95	0.96	0.93	3.18	+/-20%
13C-1,2,3,4-TCDF	1.31	1.44	1.07	1.32	1.49	1.33	12.37	+/-35%
13C-2,3,7,8-TCDF	1.27	1.24	1.29	1.30	1.31	1.28	1.98	+/-35%
13C-2,3,7,8-TCDD	0.91	0.90	0.94	0.94	0.95	0.93	2.27	+/-35%
13C-1,2,3,7,8-PeCDF	1.36	1.32	1.40	1.39	1.44	1.38	3.44	+/-35%
13C-2,3,4,7,8-PeCDF	1.35	1.32	1.38	1.37	1.43	1.37	2.94	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.87	0.84	0.89	0.87	0.89	0.87	2.35	+/-35%
37Cl-2,3,7,8-TCDD	0.88	0.92	0.96	0.96	1.01	0.94	5.24	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

SPME
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental　　Contract No.:
Lab Code: ALSTX　　Case No.:　　TO No.:　　SDG No.:
GC Column: DB-5MSUI　　ID: 0.25(mm)　　Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 06/25/16　　Method SPME
Init. Calib. Time.: 09:17

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO C1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.66	0.82	0.77	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.68	0.79	0.78	0.79	0.78		0.65-0.89
2,3,4,7,8-PeCDF	340/342	1.56	1.53	1.55	1.56	1.55		1.32-1.78
13C-1,2,3,4-TCDF	316/318	0.80	0.80	0.80	0.79	0.80		0.65-0.89
13C-2,3,7,8-TCDF	316/318	0.82	0.80	0.80	0.80	0.80		0.65-0.89
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.78	0.78	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.60	1.60	1.60	1.61		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.62	1.60	1.60	1.61	1.58		1.32-1.78
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.52	0.51	0.52	0.51		0.43-0.59
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.29	1.24	1.24	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

FORM VI-HR CDD-2

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173636

Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	1.659e+02	2.502e+02	0.66	yes	yes	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.262e+03	8.112e+02	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.471e+02	2.158e+02	0.68	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	3.924e+04	4.815e+04	0.82	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.787e+04	3.555e+04	1.63	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	5.732e+04	3.540e+04	1.62	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.788e+04	3.501e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.003e+04	4.991e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	2.727e+04	3.509e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.030e+04	3.842e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.373e+04	2.692e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	3.012e+02				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173636

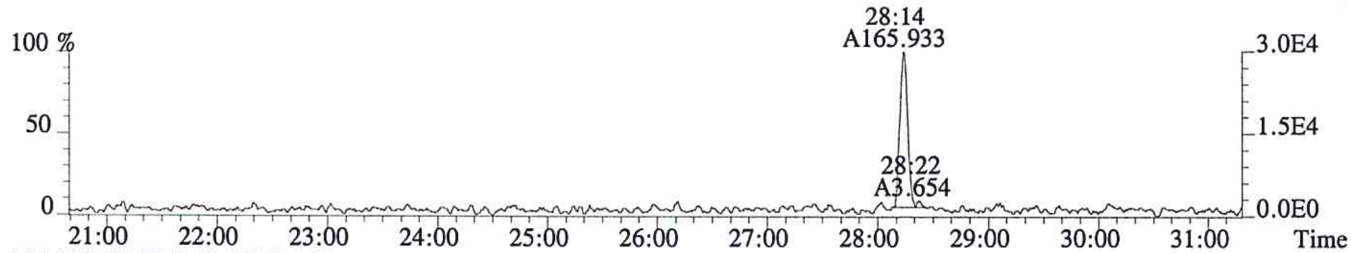
Run #1 Filename P603982 Samp: 1 Inj: 1 Acquired: 25-JUN-16 10:06:18
Processed: 25-JUN-16 11:04:04 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.89e+04	1.68e+03	1.7e+01	4.53e+04	4.50e+03	1.0e+01
3	2,3,4,7,8-PeCDF	2.34e+05	1.24e+03	1.9e+02	1.53e+05	1.94e+03	7.9e+01
11	2,3,7,8-TCDD	2.46e+04	1.07e+03	2.3e+01	3.66e+04	1.37e+03	2.7e+01
18	13C-2,3,7,8-TCDF	6.69e+06	6.48e+03	1.0e+03	8.21e+06	3.58e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	9.80e+06	1.39e+03	7.1e+03	6.08e+06	1.25e+04	4.8e+02
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.39e+03	7.6e+03	6.48e+06	1.25e+04	5.2e+02
24	13C-1,2,3,7,8,9-HxCDF	3.21e+06	1.12e+03	2.9e+03	6.25e+06	1.78e+03	3.5e+03
26	13C-1,2,3,4-TCDF	6.44e+06	6.48e+03	9.9e+02	8.07e+06	3.58e+03	2.3e+03
27	13C-2,3,7,8-TCDD	4.87e+06	9.76e+03	5.0e+02	6.17e+06	4.64e+03	1.3e+03
33	13C-1,2,3,4-TCDD	5.55e+06	9.76e+03	5.7e+02	7.02e+06	4.64e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	2.00e+03	2.9e+03	4.65e+06	1.55e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	5.73e+04	3.00e+03	1.9e+01			

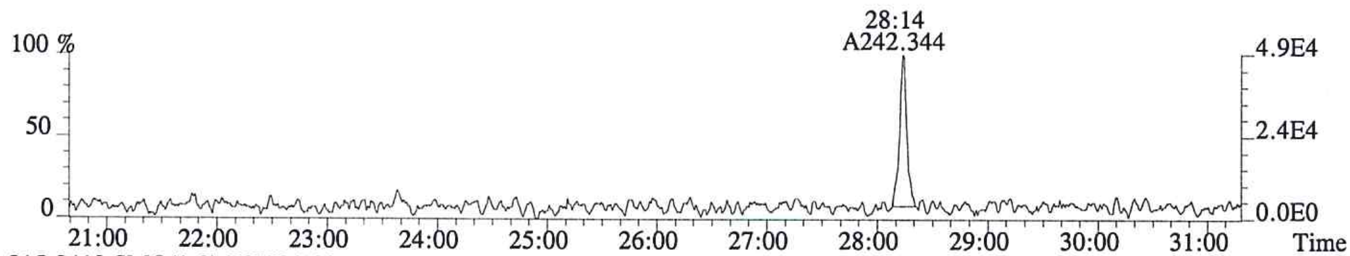
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

www.alsglobal.com

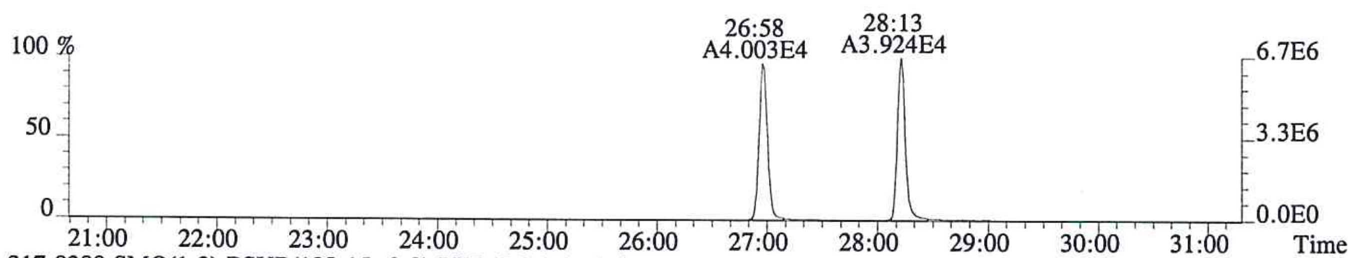
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



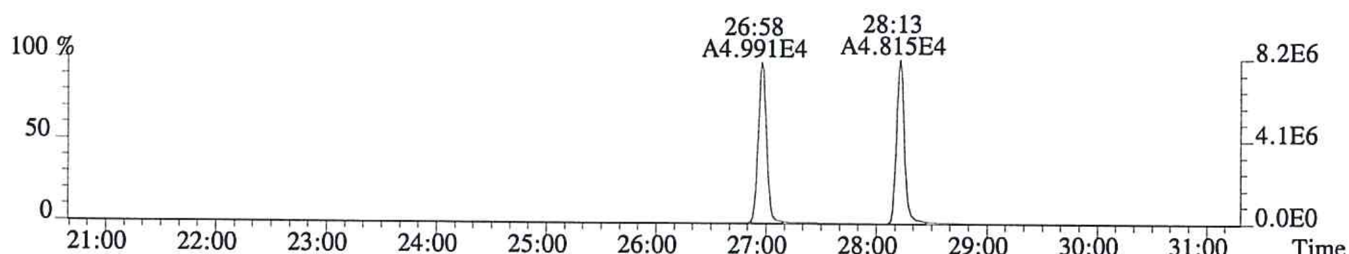
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



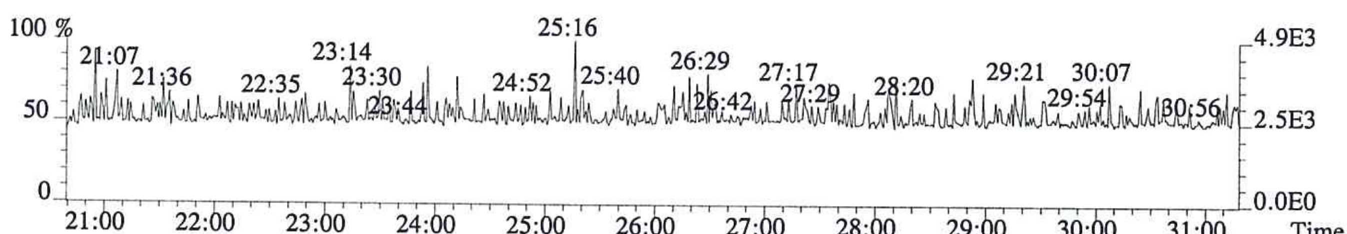
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6484.0,1.00%,F,T)



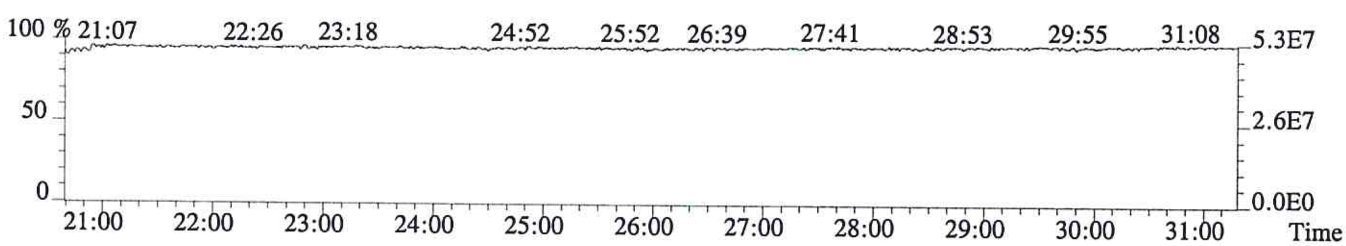
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



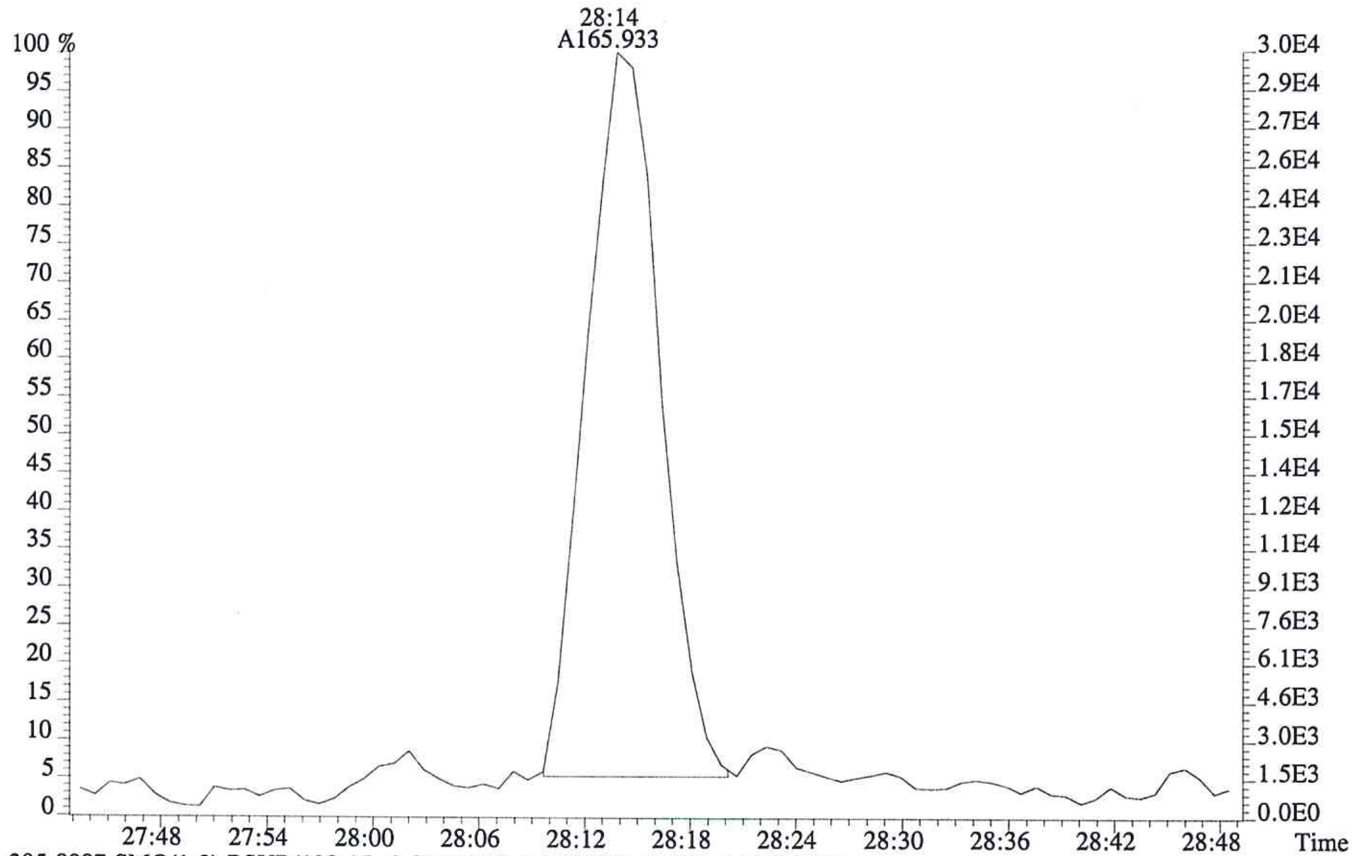
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



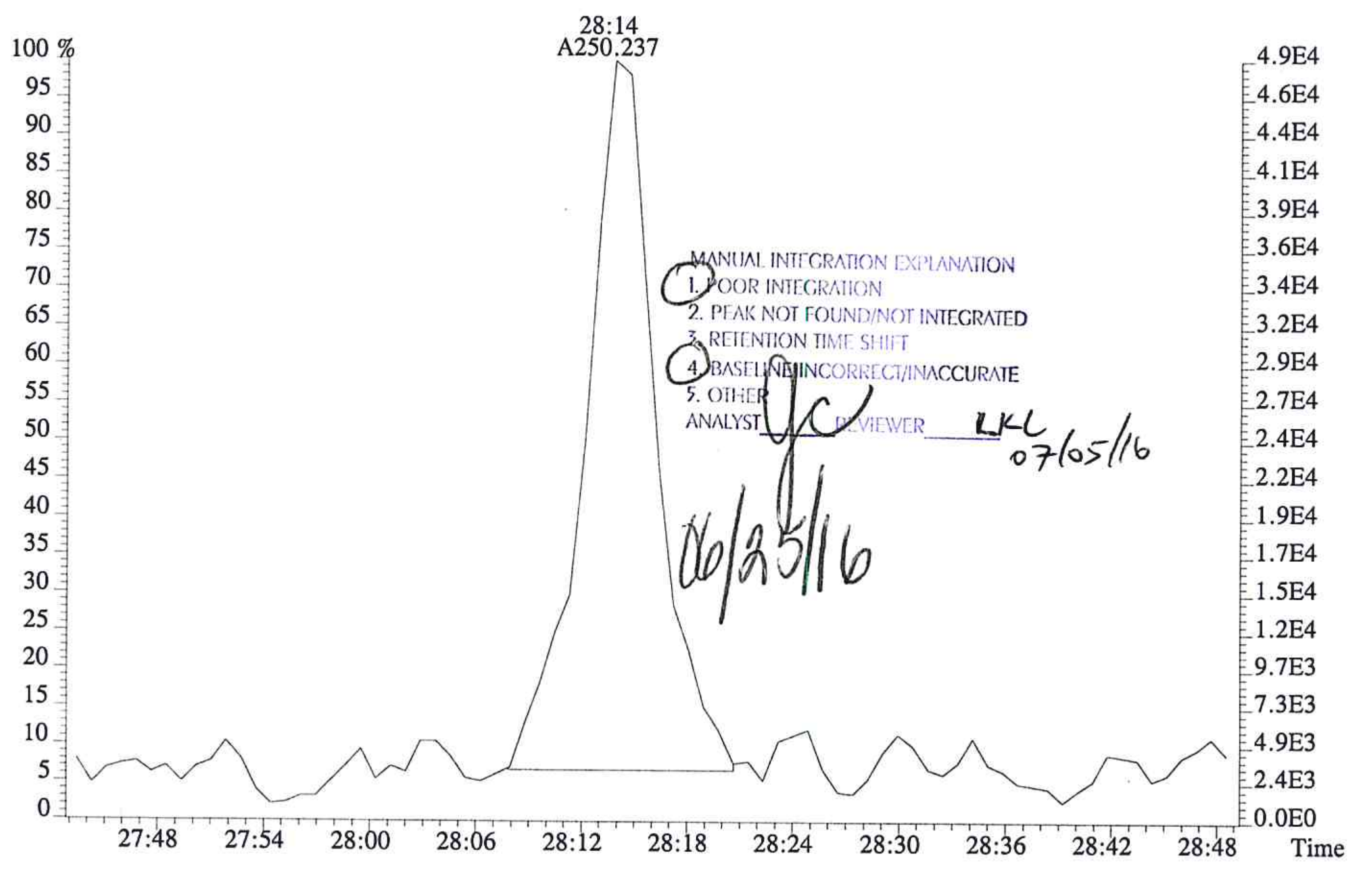
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



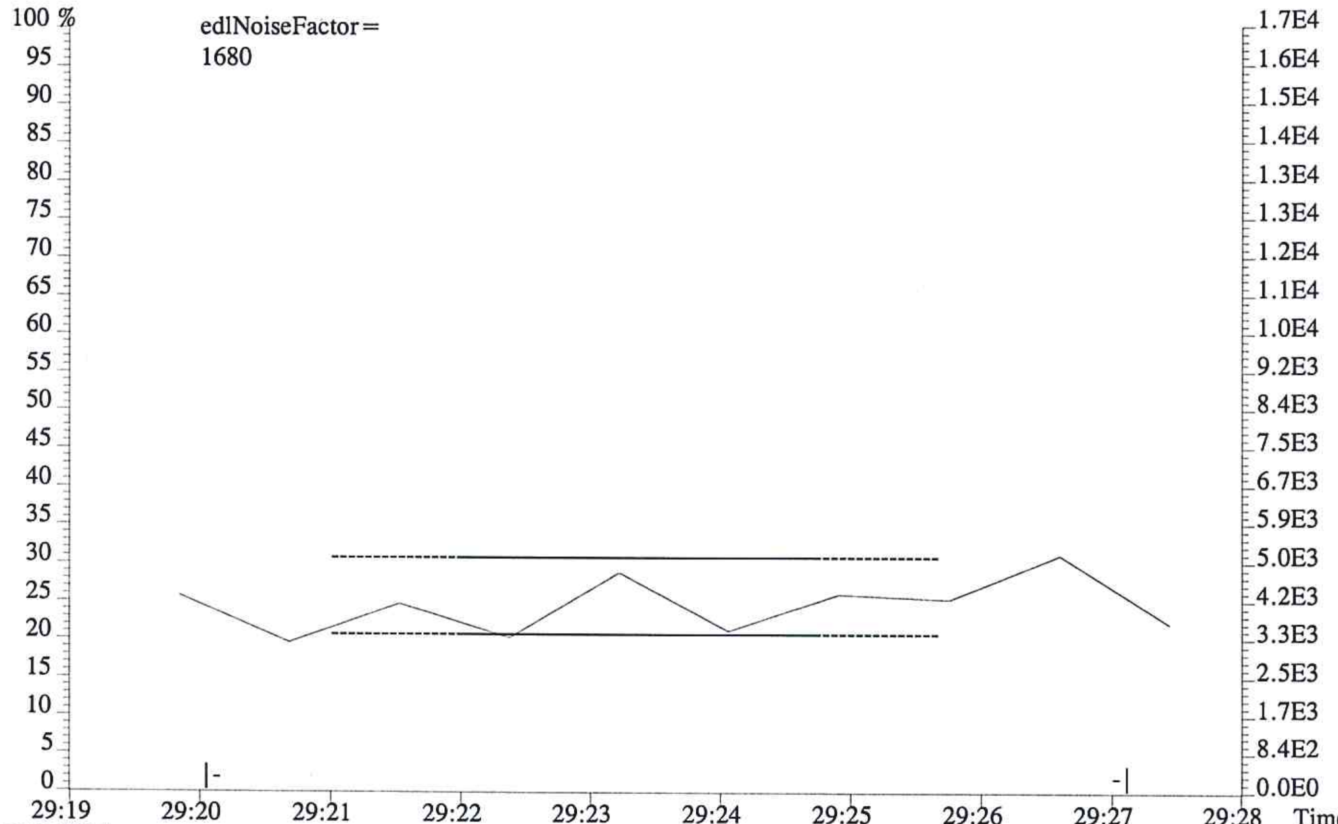
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



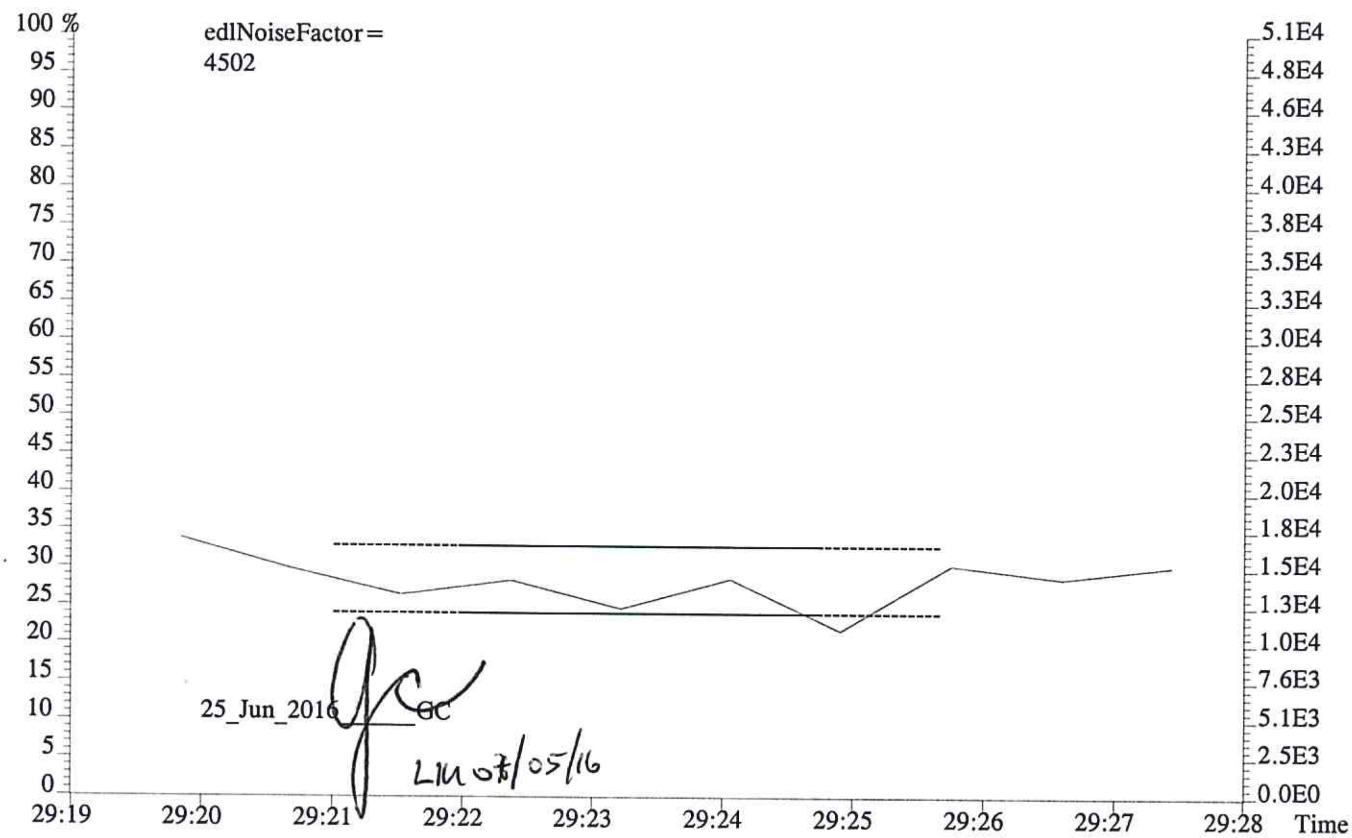
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



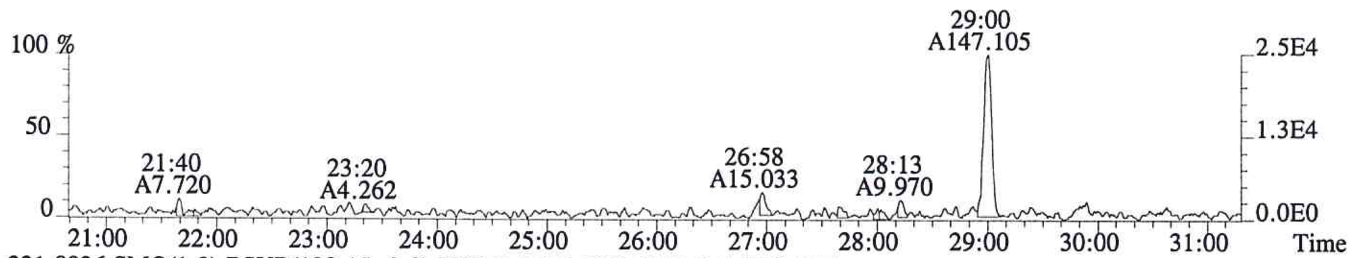
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016



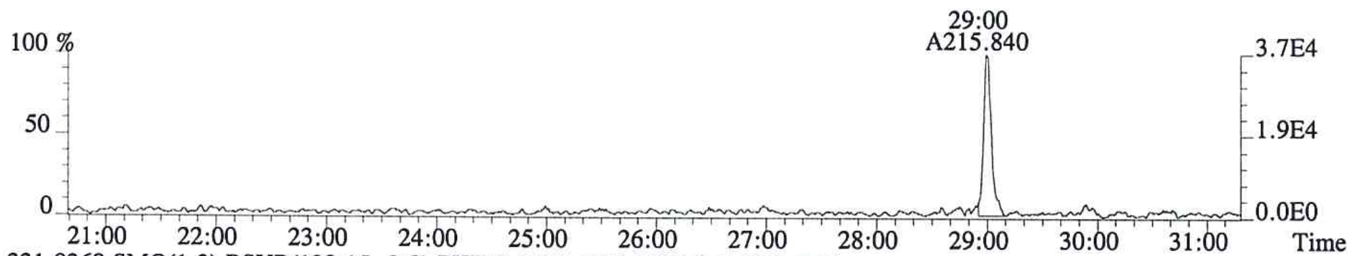
305.8987



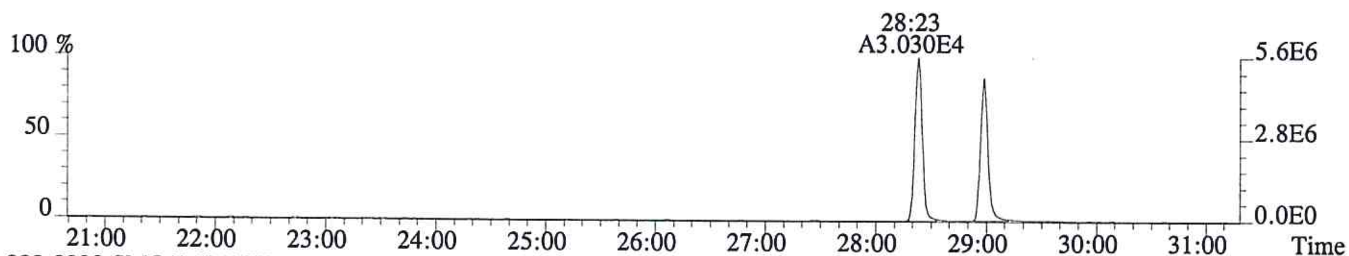
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



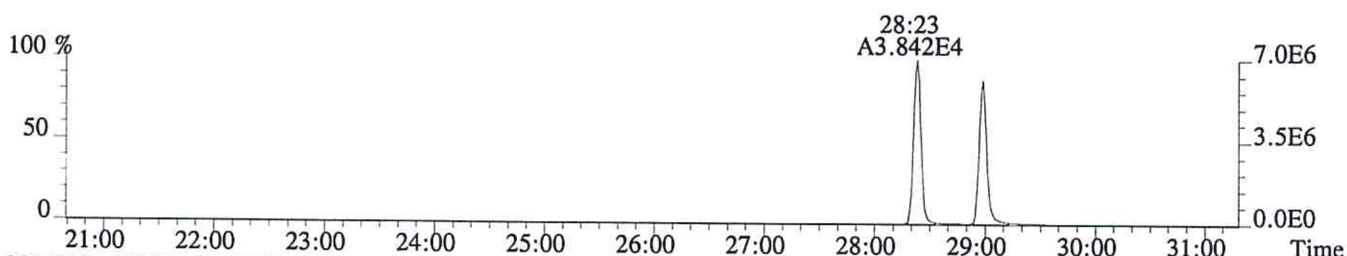
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



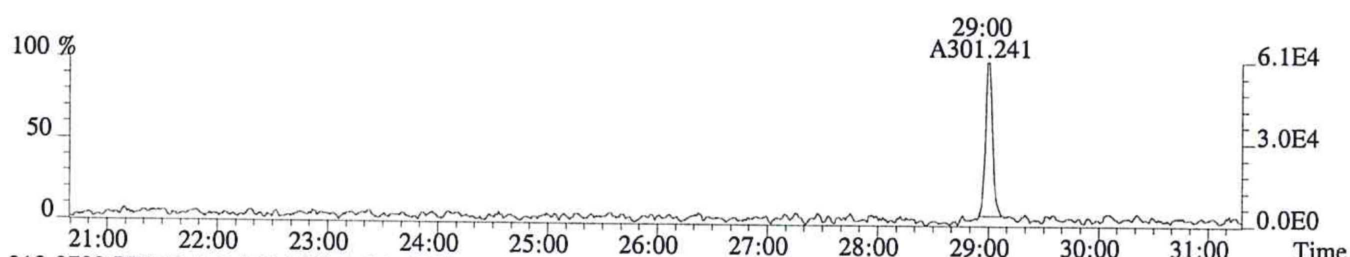
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9756.0,1.00%,F,T)



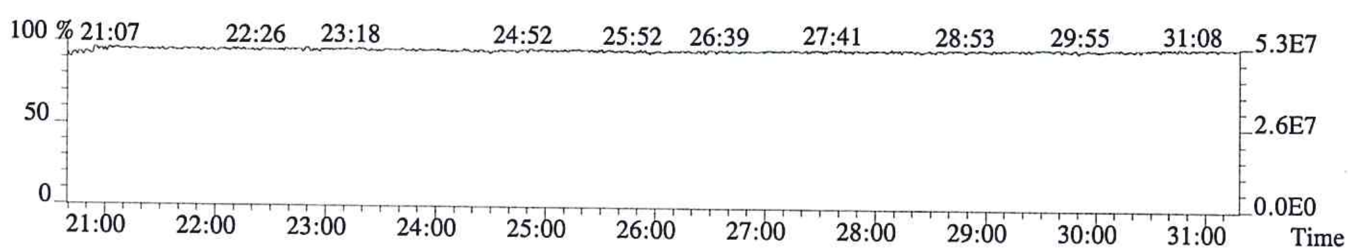
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4644.0,1.00%,F,T)



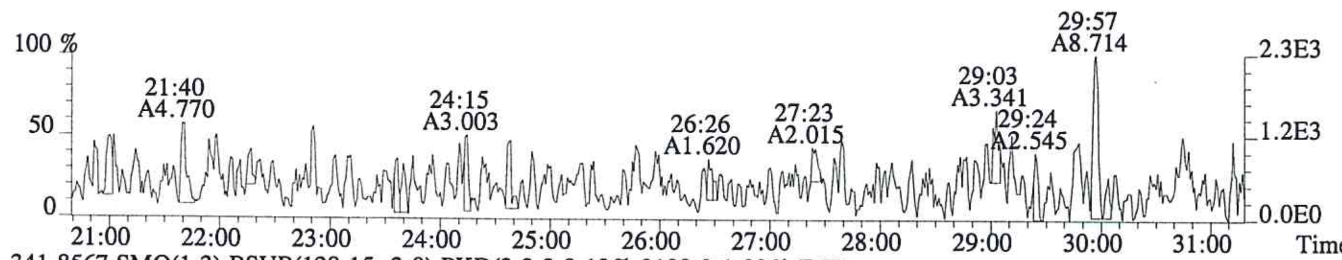
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3000.0,1.00%,F,T)



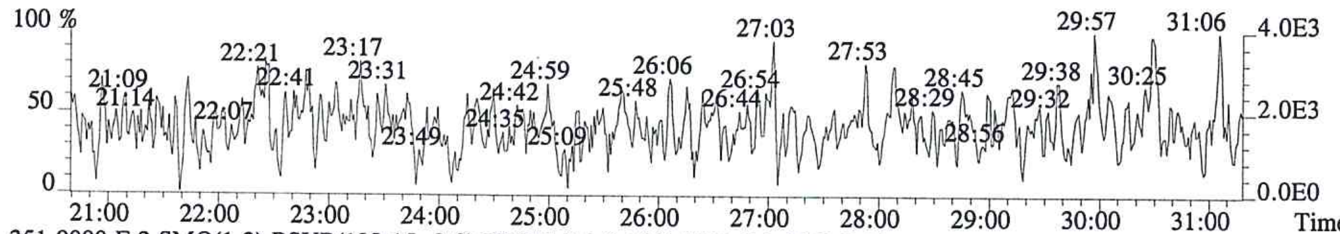
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



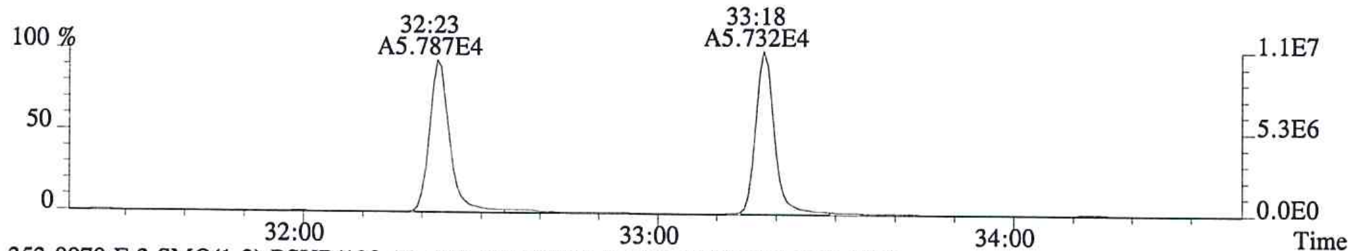
File:P603982 #1-756 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



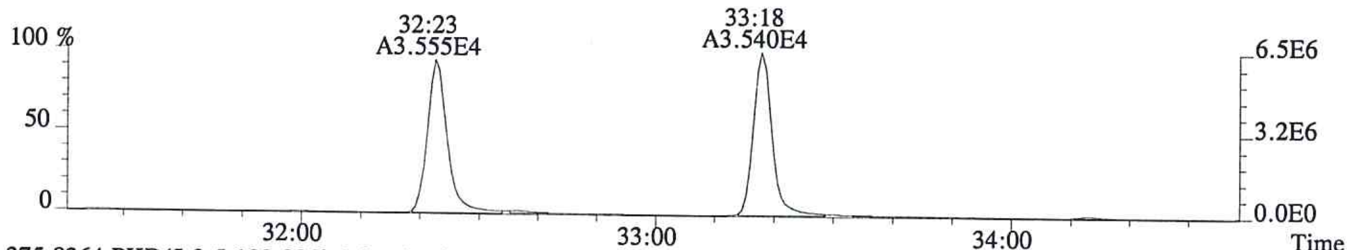
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



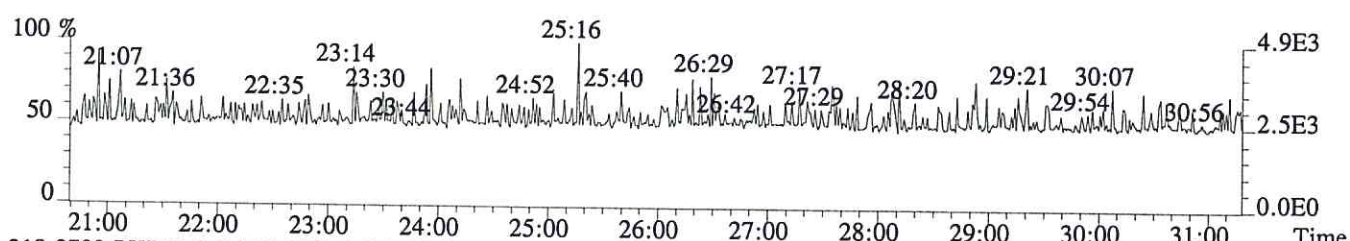
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



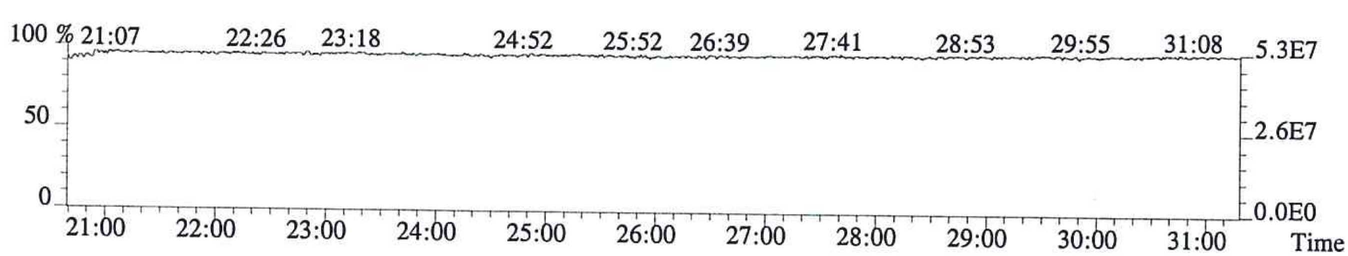
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



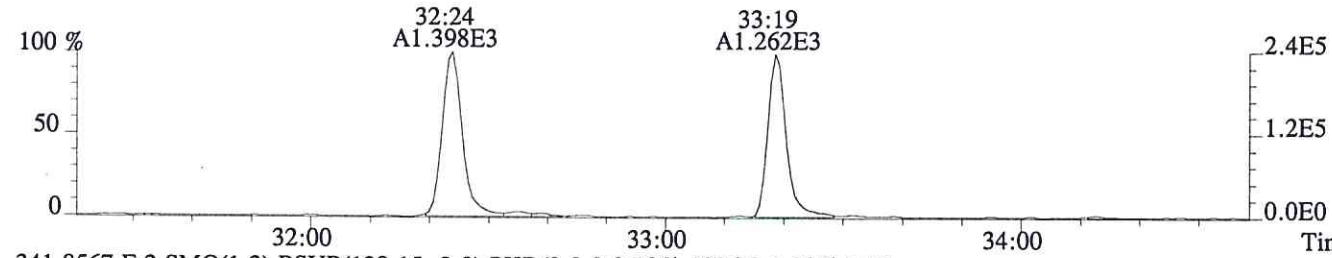
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



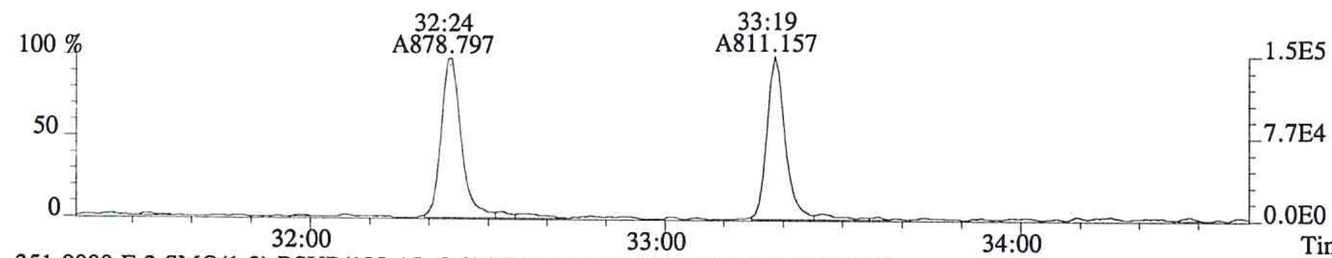
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



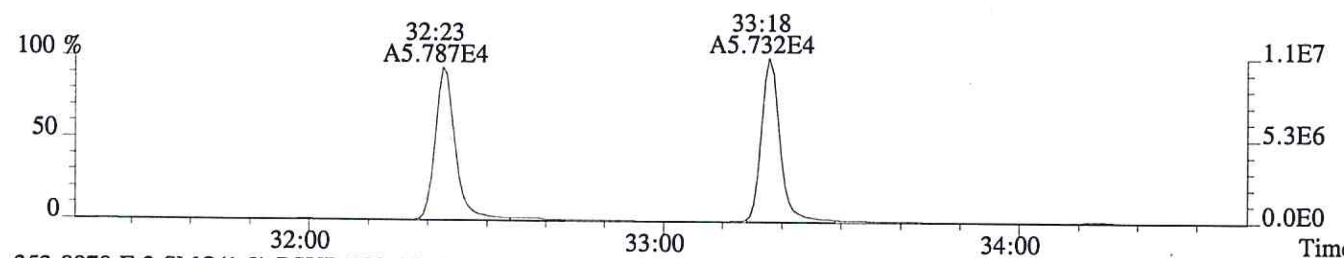
File:P603982 #1-298 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



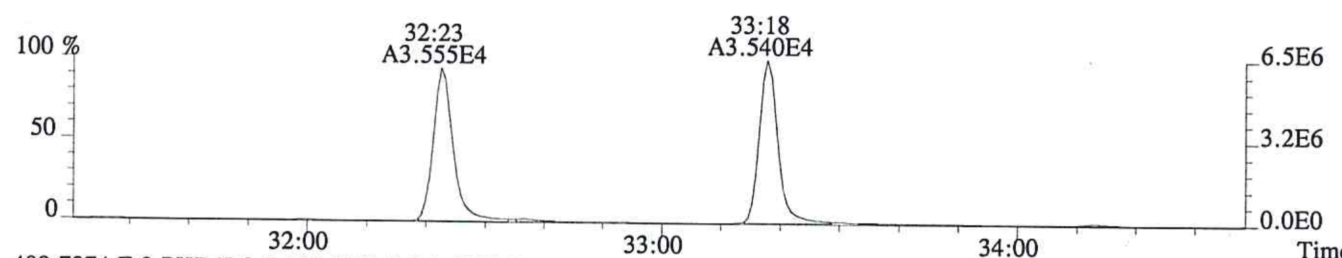
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



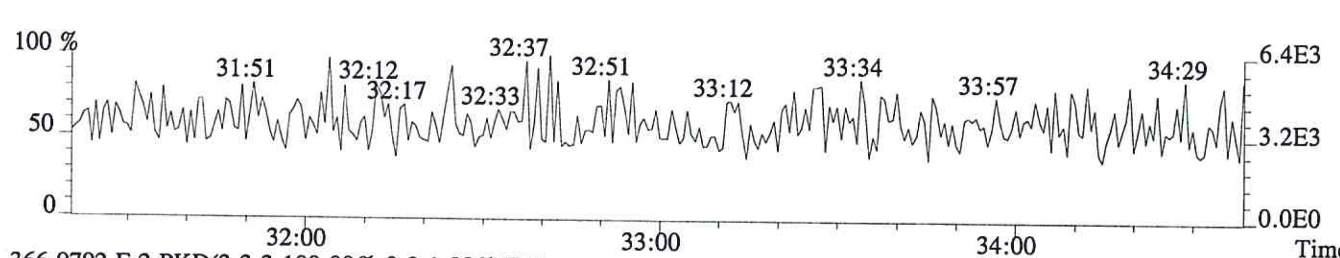
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



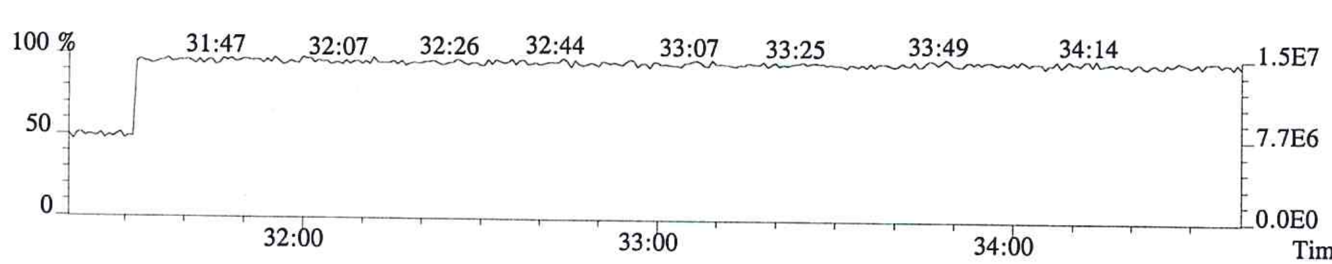
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12544.0,1.00%,F,T)



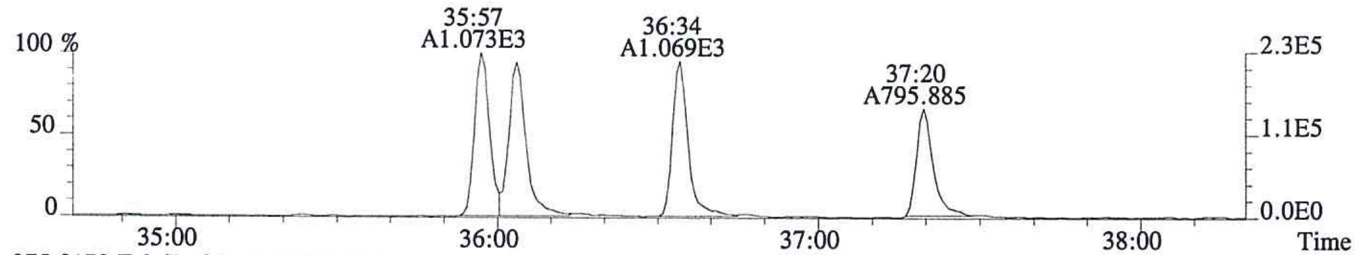
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



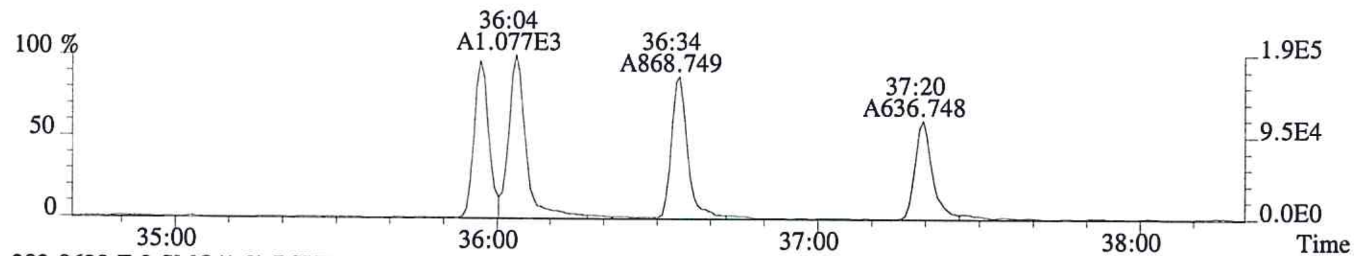
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



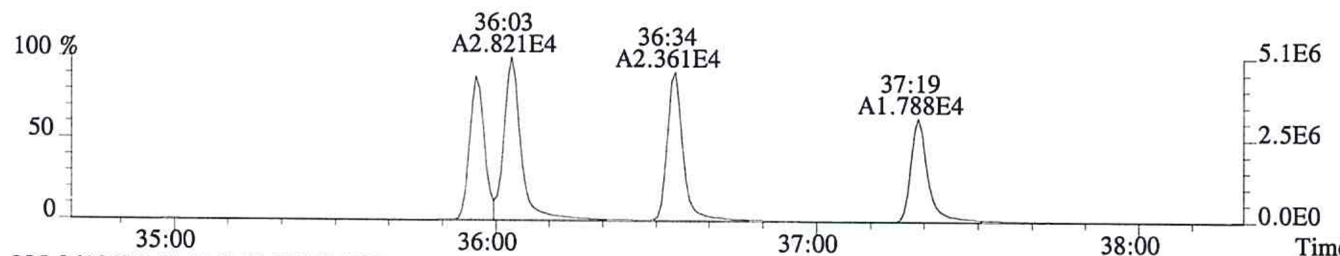
File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



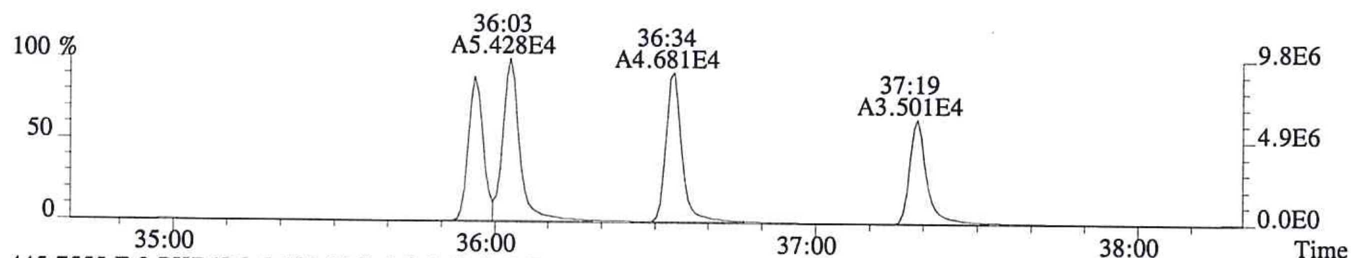
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



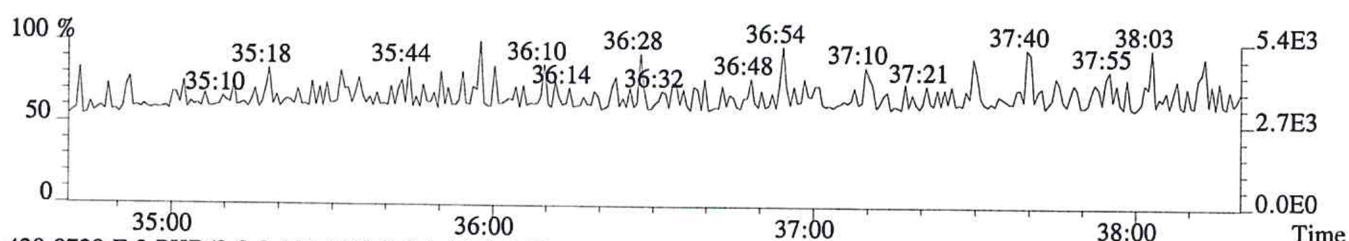
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



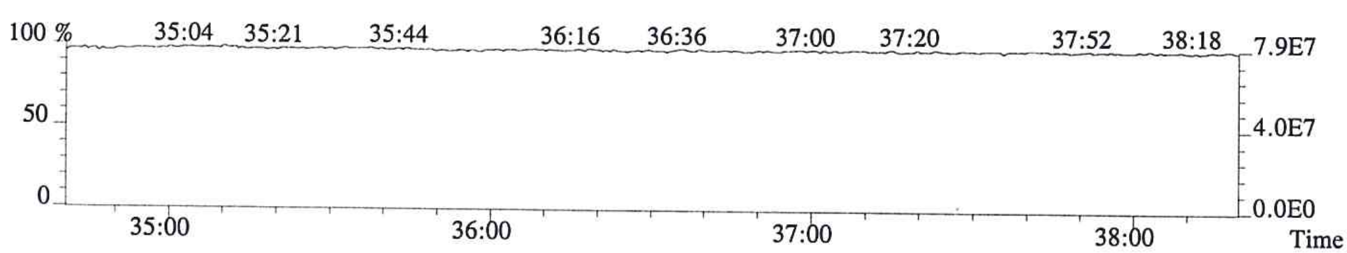
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



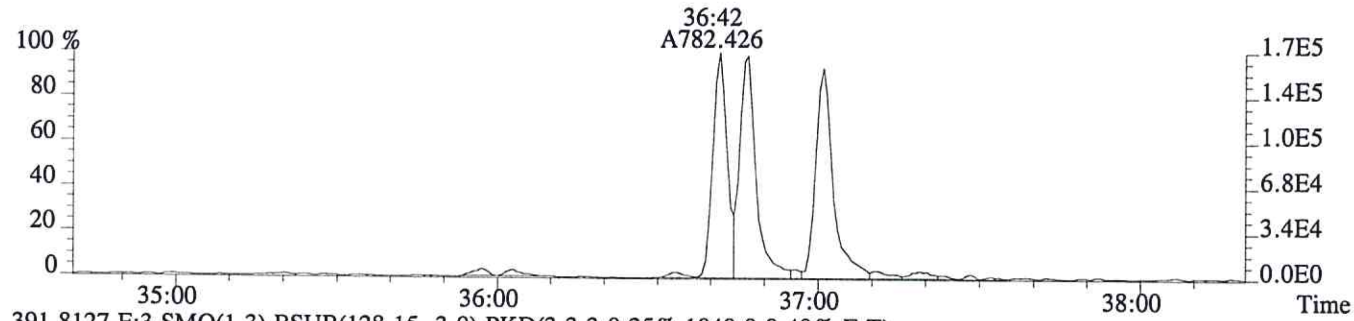
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



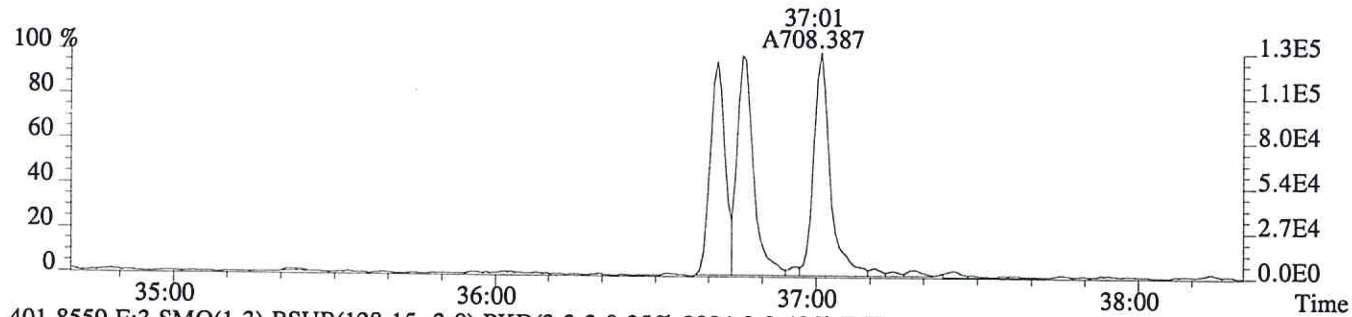
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



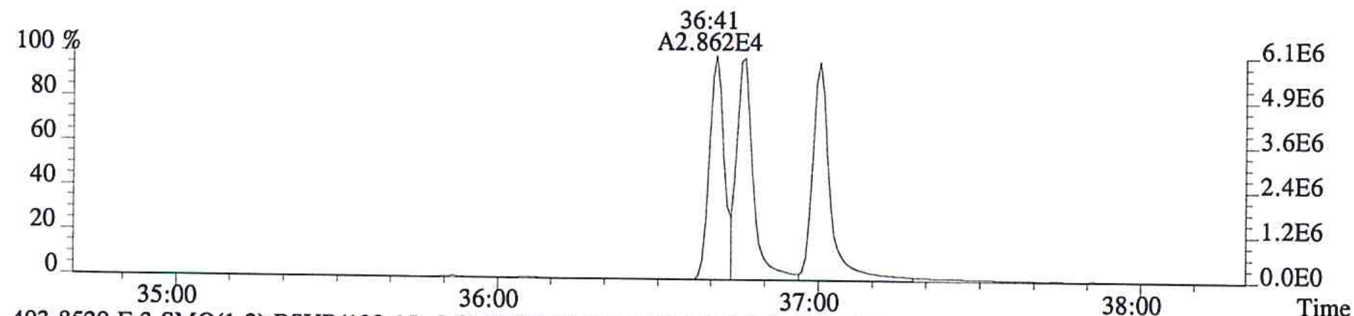
File:P603982 #1-329 Acq:25-JUN-2016 10:06:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



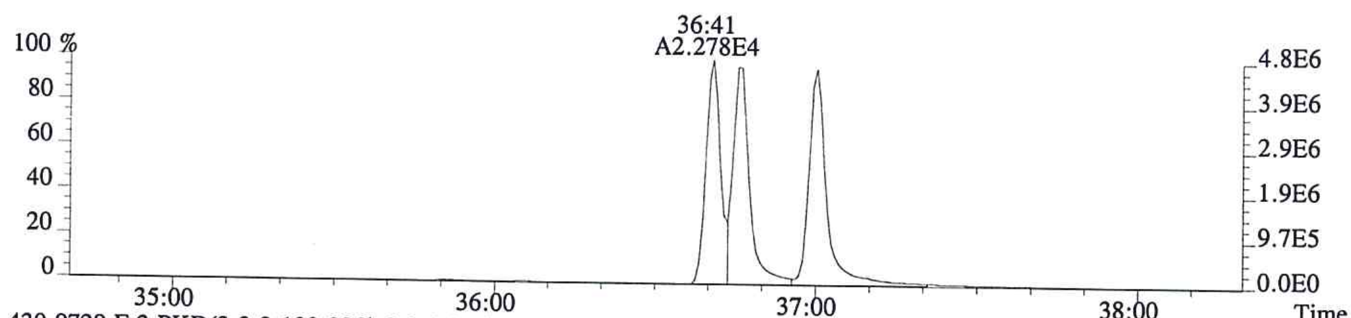
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



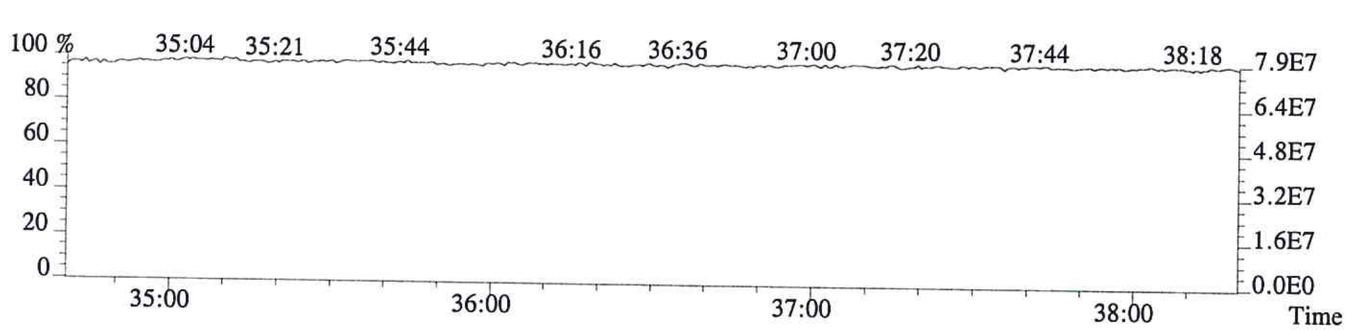
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	6.799e+02	8.314e+02	0.82	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.821e+03	3.158e+03	1.53	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:01	5.343e+02	6.795e+02	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	3.694e+04	4.596e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	5.402e+04	3.368e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	5.416e+04	3.394e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.659e+04	3.192e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.274e+04	5.355e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	2.625e+04	3.404e+04	0.77	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	2.934e+04	3.730e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:01	3.239e+04	2.513e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.225e+03				no	0.945

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173637

Run #2 Filename P603983 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:09:26
Processed: 25-JUN-16 13:05:01 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.17e+05	1.48e+03	7.9e+01	1.52e+05	4.36e+03	3.5e+01
3	2,3,4,7,8-PeCDF	8.88e+05	2.05e+03	4.3e+02	5.85e+05	3.36e+03	1.7e+02
11	2,3,7,8-TCDD	9.48e+04	1.46e+03	6.5e+01	1.18e+05	1.44e+03	8.2e+01
18	13C-2,3,7,8-TCDF	6.40e+06	6.69e+03	9.6e+02	7.94e+06	4.12e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.08e+06	1.90e+04	4.8e+02	5.70e+06	9.55e+03	6.0e+02
20	13C-2,3,4,7,8-PeCDF	9.94e+06	1.90e+04	5.2e+02	6.21e+06	9.55e+03	6.5e+02
24	13C-1,2,3,7,8,9-HxCDF	2.98e+06	1.04e+03	2.9e+03	5.77e+06	2.19e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.93e+06	6.69e+03	1.0e+03	8.59e+06	4.12e+03	2.1e+03
27	13C-2,3,7,8-TCDD	4.74e+06	9.28e+03	5.1e+02	6.17e+06	3.62e+03	1.7e+03
33	13C-1,2,3,4-TCDD	5.42e+06	9.28e+03	5.8e+02	6.85e+06	3.62e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.54e+06	2.31e+03	2.4e+03	4.38e+06	1.60e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.19e+05	2.42e+03	9.0e+01			

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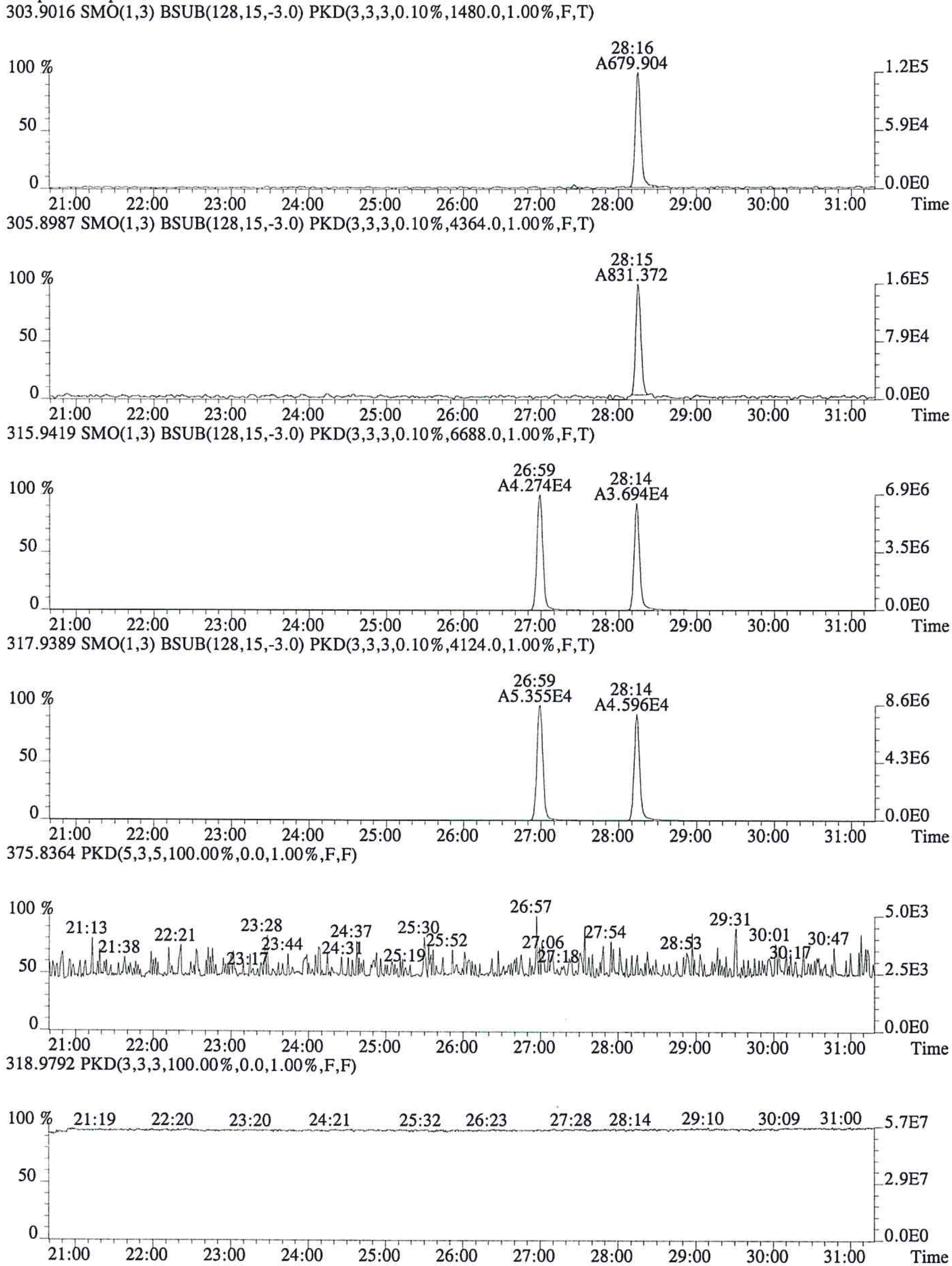
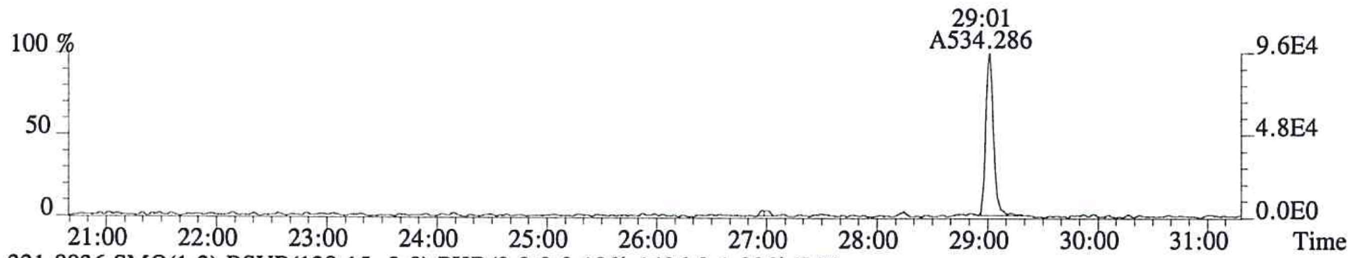
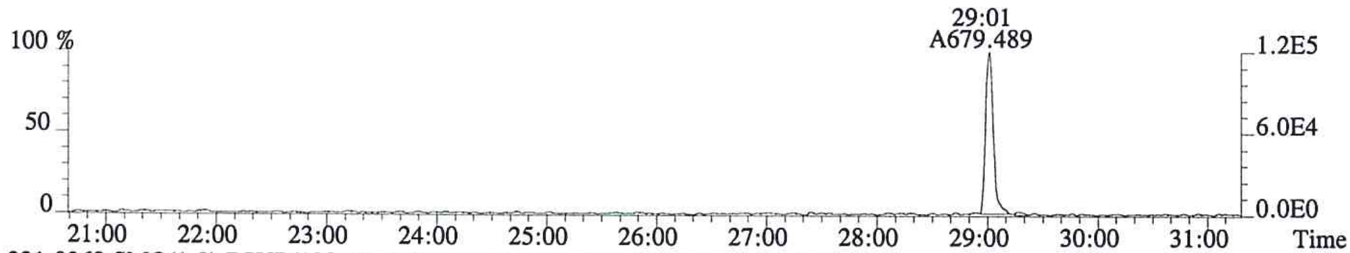
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2



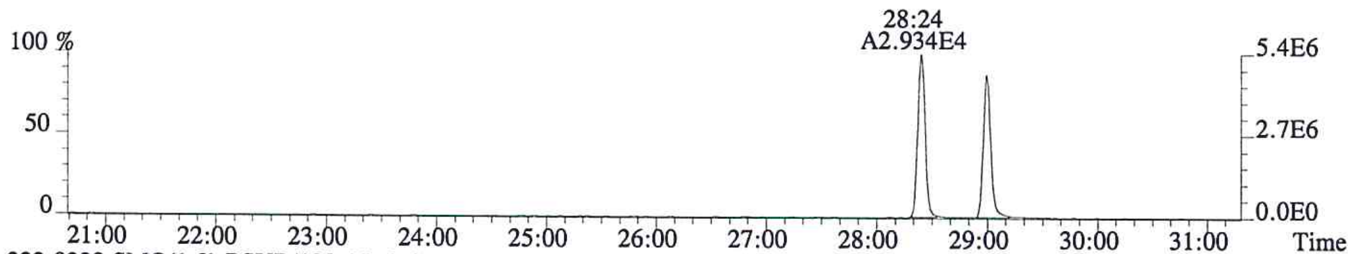
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



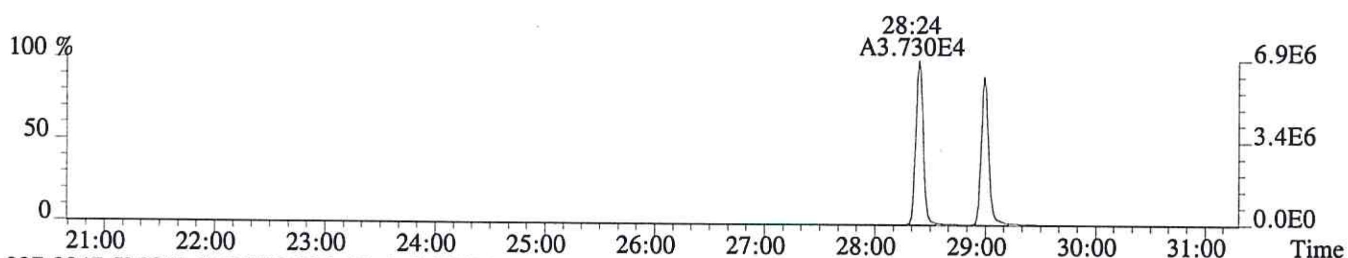
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



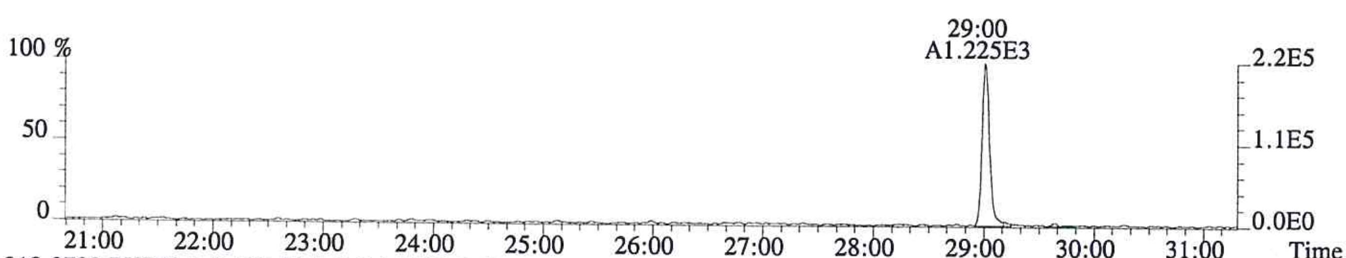
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9284.0,1.00%,F,T)



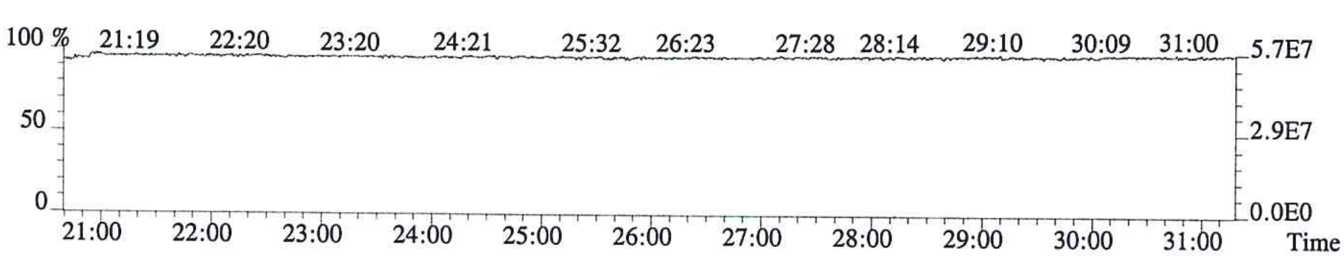
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3624.0,1.00%,F,T)



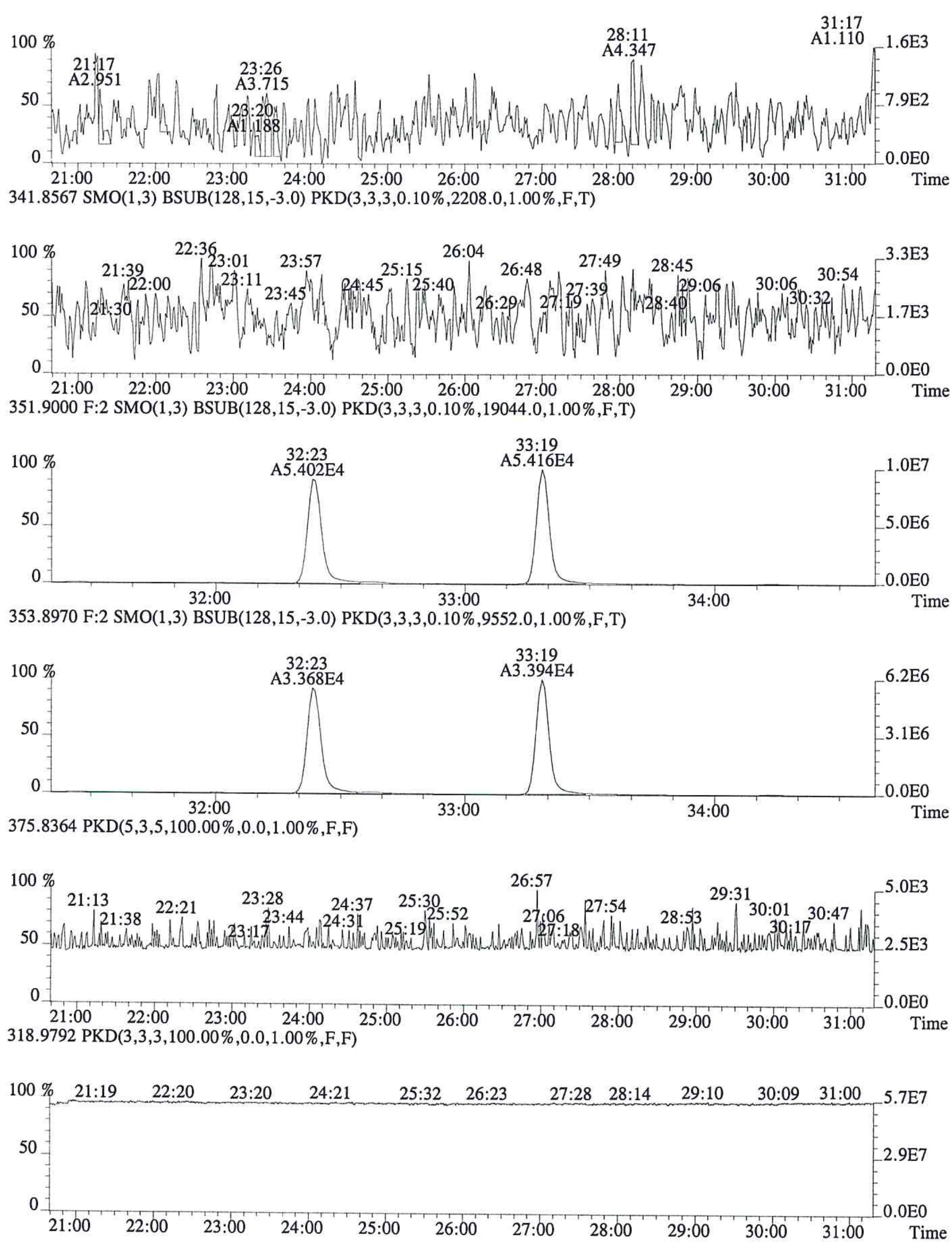
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



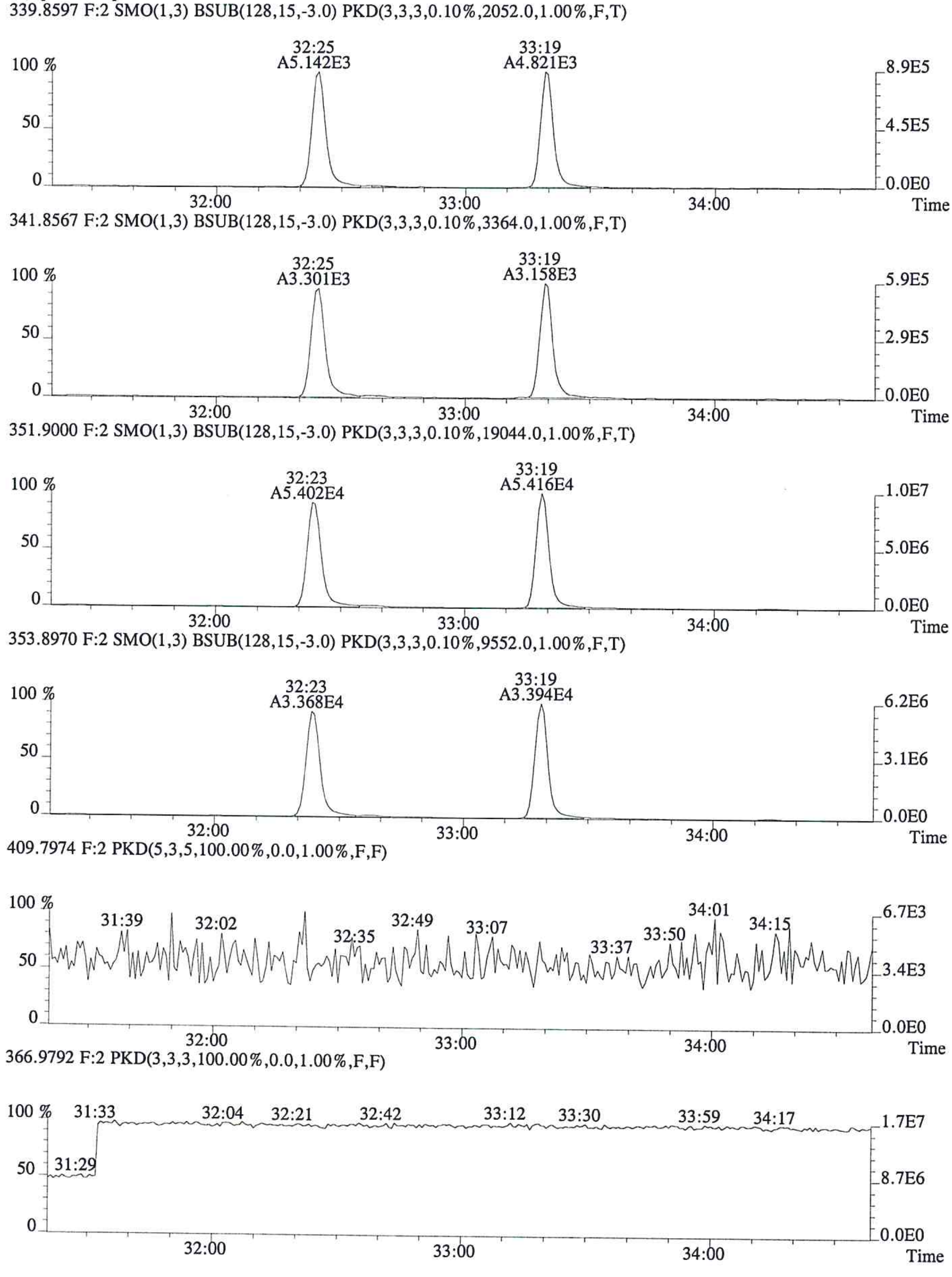
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



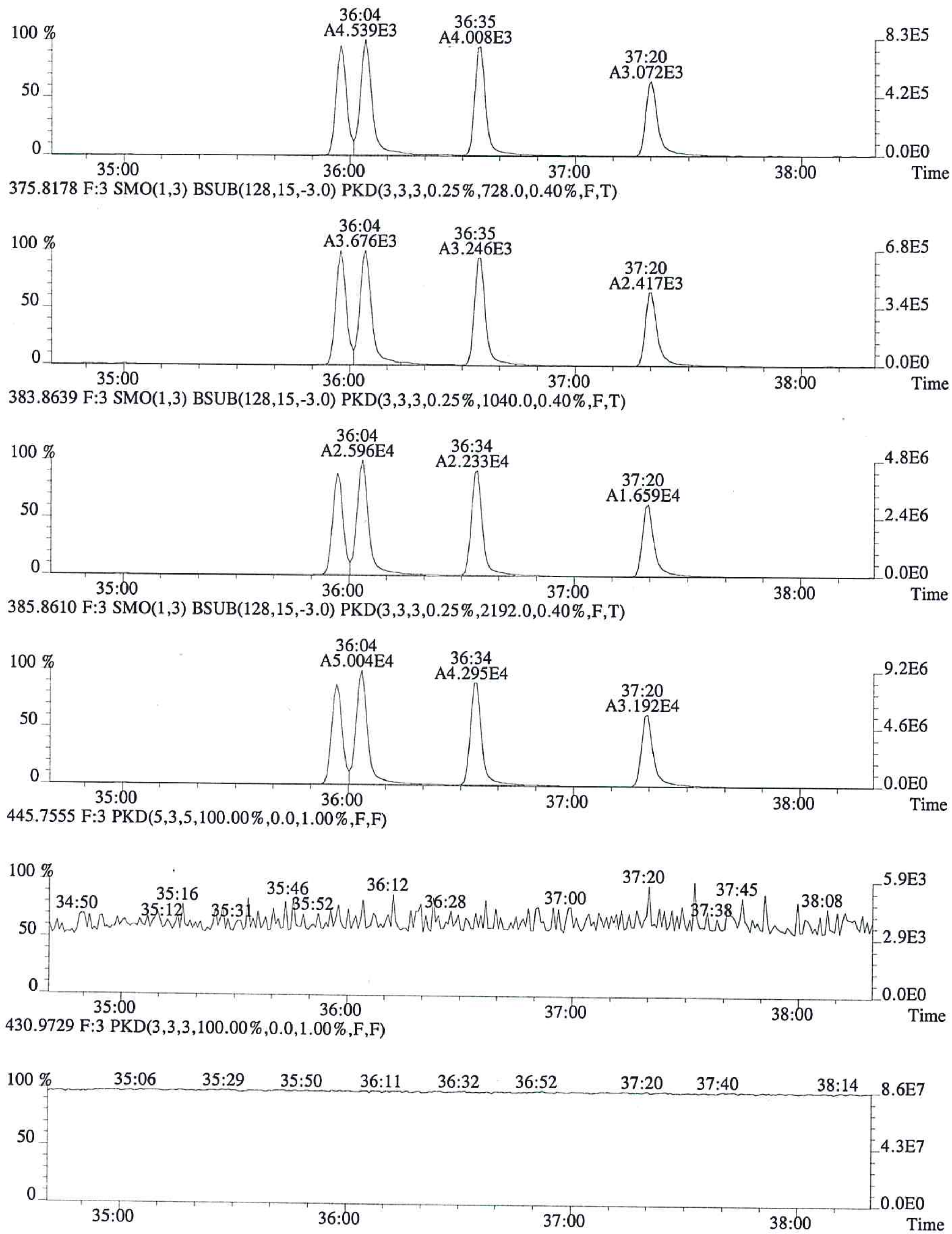
File:P603983 #1-756 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2



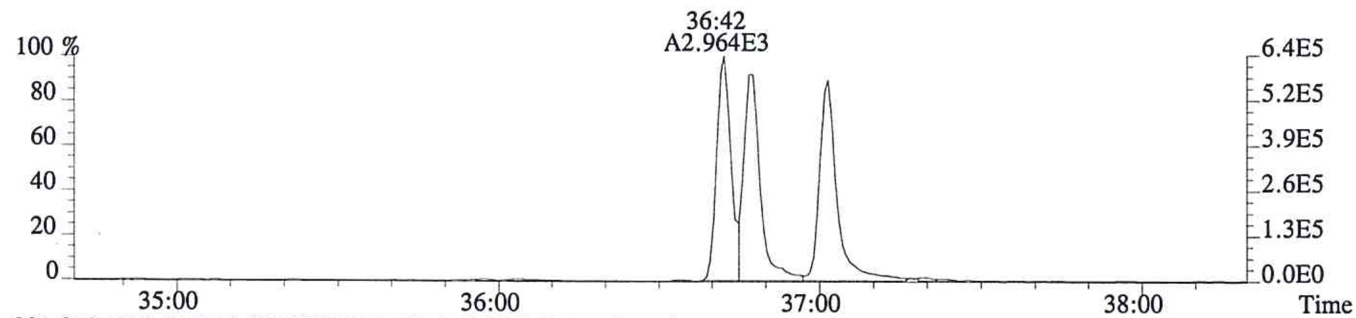
File:P603983 #1-298 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2



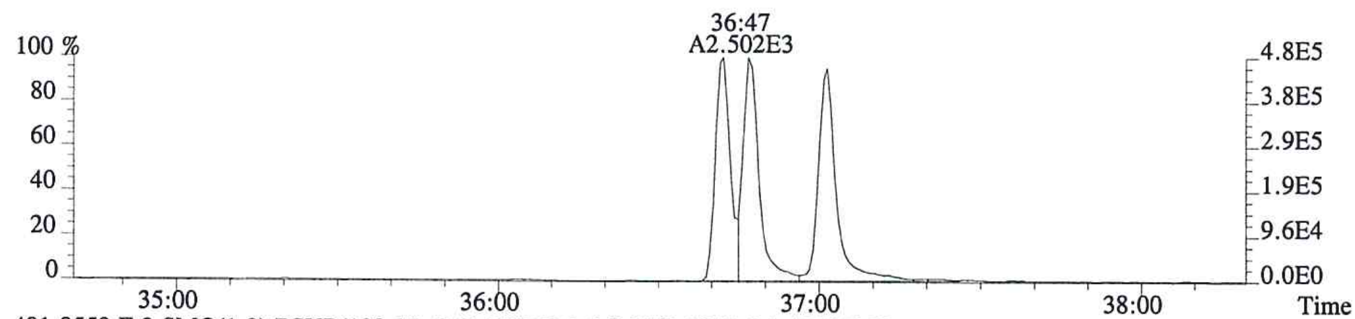
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



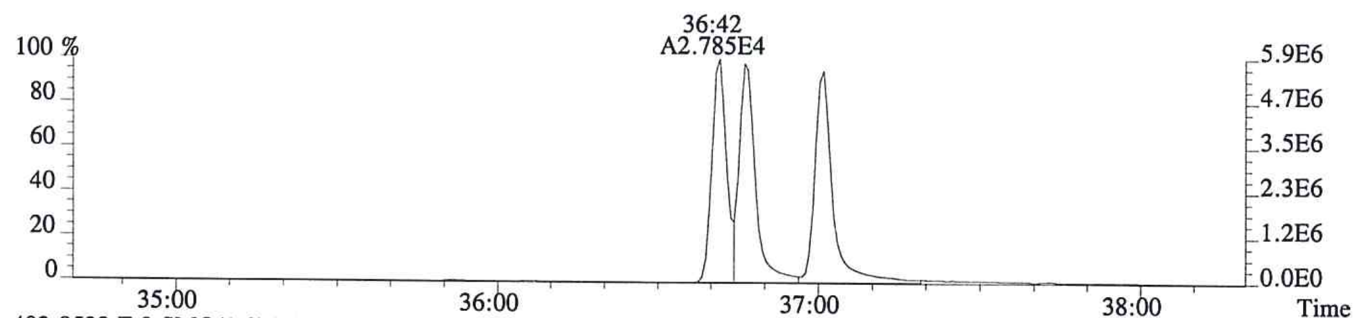
File:P603983 #1-329 Acq:25-JUN-2016 11:09:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



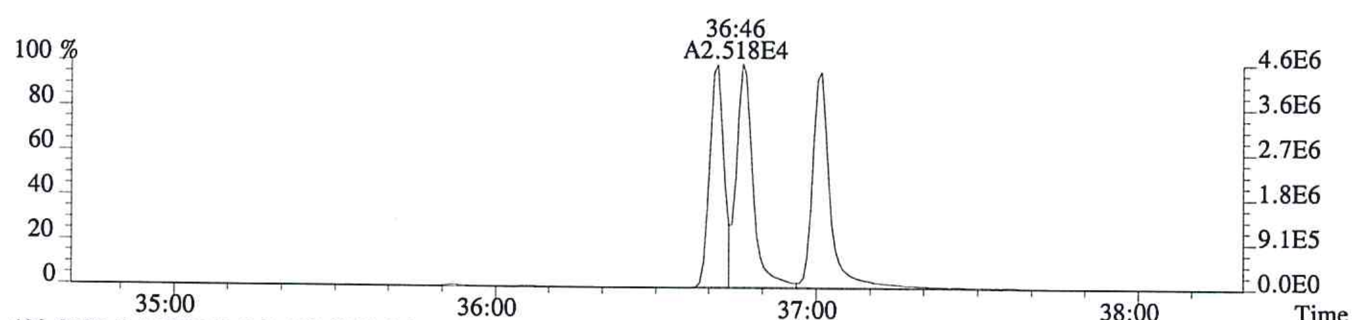
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



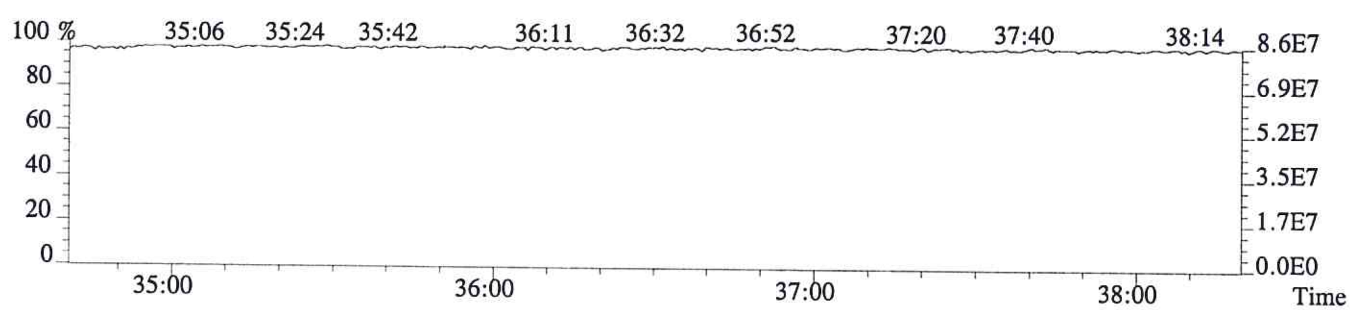
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2312.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	6.879e+03	8.895e+03	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	4.946e+04	3.185e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	5.200e+03	6.636e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	7.245e+04	9.072e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	1.083e+05	6.772e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	1.074e+05	6.710e+04	1.60	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	3.456e+04	6.770e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	5.981e+04	7.456e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	5.212e+04	6.669e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	5.576e+04	7.031e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	6.329e+04	5.113e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.213e+04				no	0.945

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173638

Run #3 Filename P603984 Samp: 1 Inj: 1 Acquired: 25-JUN-16 11:55:54
Processed: 25-JUN-16 13:05:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.22e+06	1.06e+03	1.2e+03	1.59e+06	4.41e+03	3.6e+02
3	2,3,4,7,8-PeCDF	9.20e+06	1.30e+04	7.1e+02	6.00e+06	9.93e+03	6.0e+02
11	2,3,7,8-TCDD	9.42e+05	1.36e+03	6.9e+02	1.22e+06	1.25e+03	9.7e+02
18	13C-2,3,7,8-TCDF	1.28e+07	4.69e+03	2.7e+03	1.60e+07	3.17e+03	5.0e+03
19	13C-1,2,3,7,8-PeCDF	1.89e+07	2.06e+04	9.2e+02	1.20e+07	1.57e+04	7.6e+02
20	13C-2,3,4,7,8-PeCDF	2.04e+07	2.06e+04	9.9e+02	1.28e+07	1.57e+04	8.2e+02
24	13C-1,2,3,7,8,9-HxCDF	6.60e+06	2.15e+03	3.1e+03	1.28e+07	2.19e+03	5.8e+03
26	13C-1,2,3,4-TCDF	9.83e+06	4.69e+03	2.1e+03	1.24e+07	3.17e+03	3.9e+03
27	13C-2,3,7,8-TCDD	9.62e+06	9.05e+03	1.1e+03	1.23e+07	4.67e+03	2.6e+03
33	13C-1,2,3,4-TCDD	1.05e+07	9.05e+03	1.2e+03	1.32e+07	4.67e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.94e+03	6.2e+03	9.53e+06	1.50e+03	6.4e+03
35	37Cl-2,3,7,8-TCDD	2.22e+06	2.64e+03	8.4e+02			

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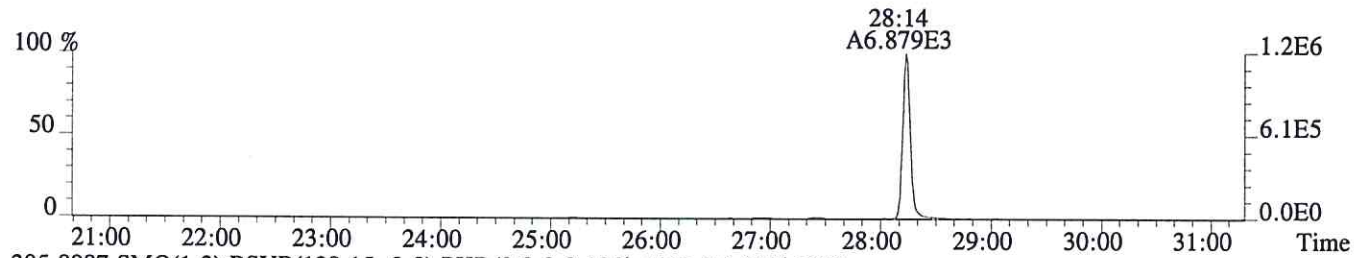
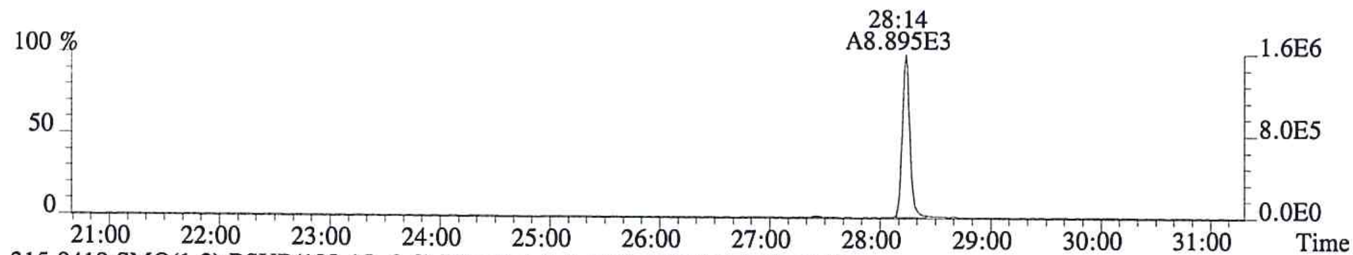
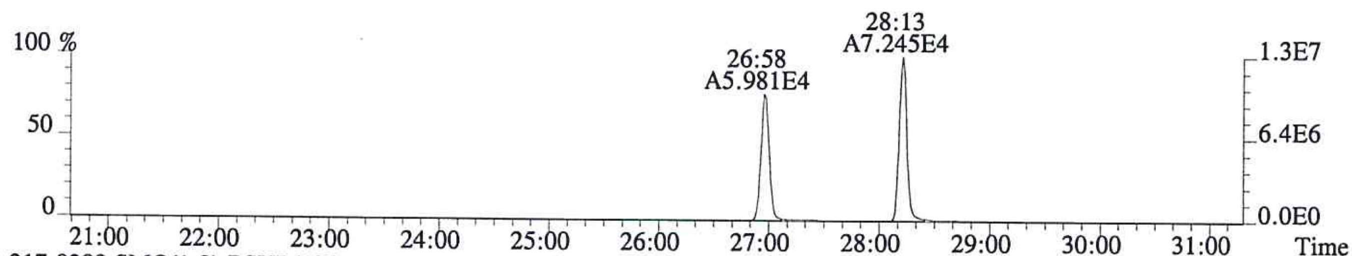
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



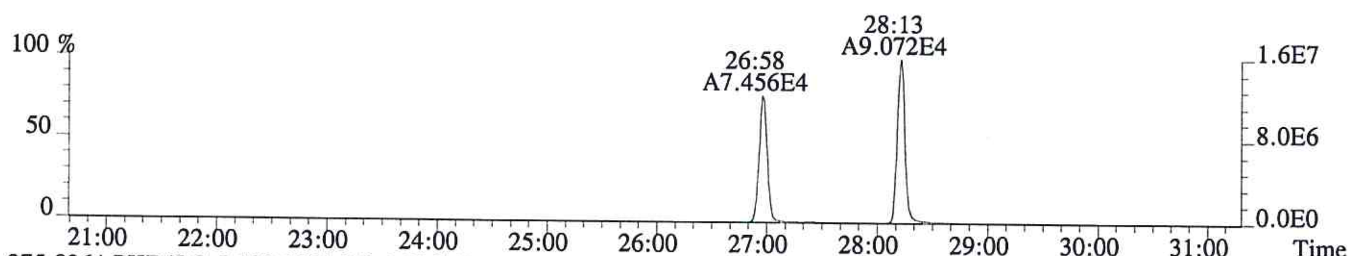
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



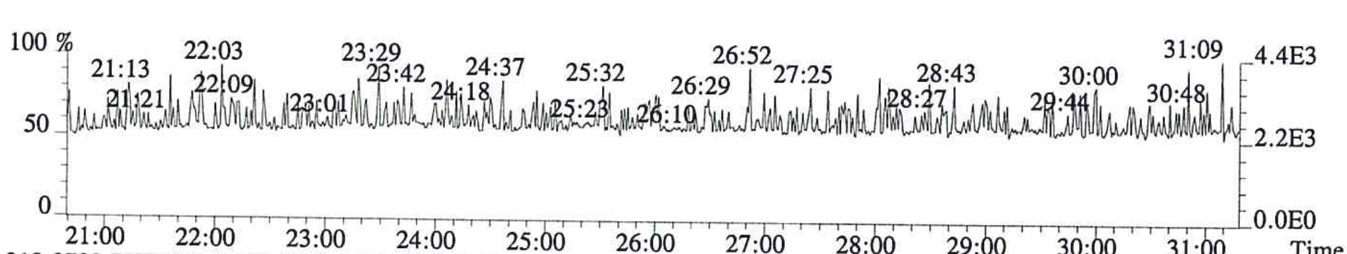
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4688.0,1.00%,F,T)



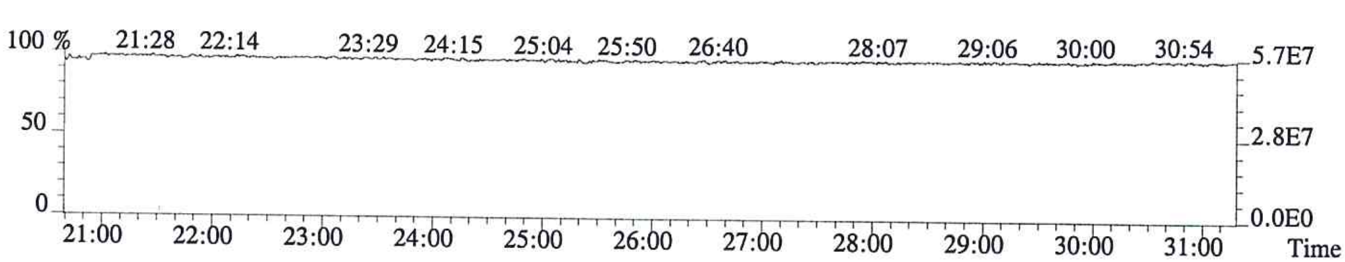
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

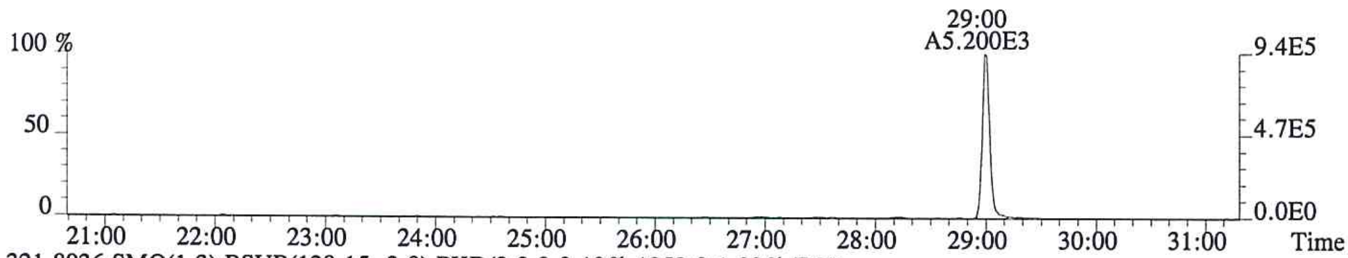


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

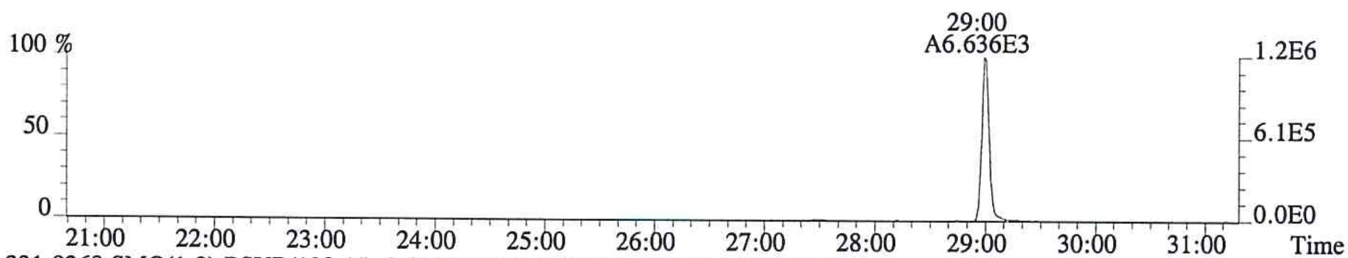


File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

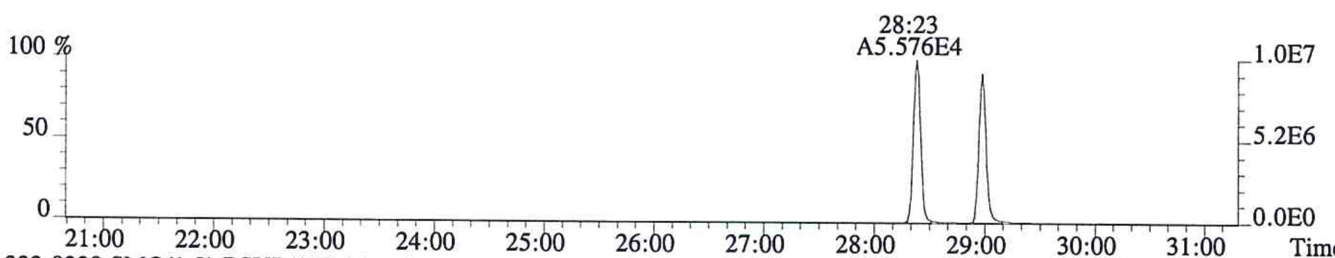
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



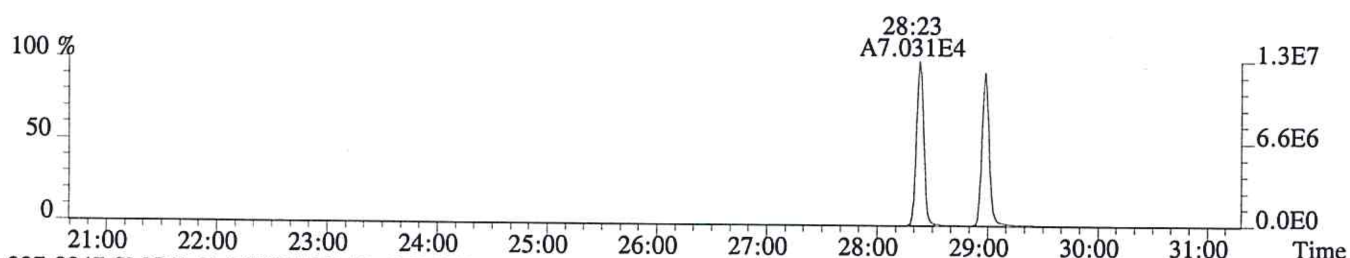
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



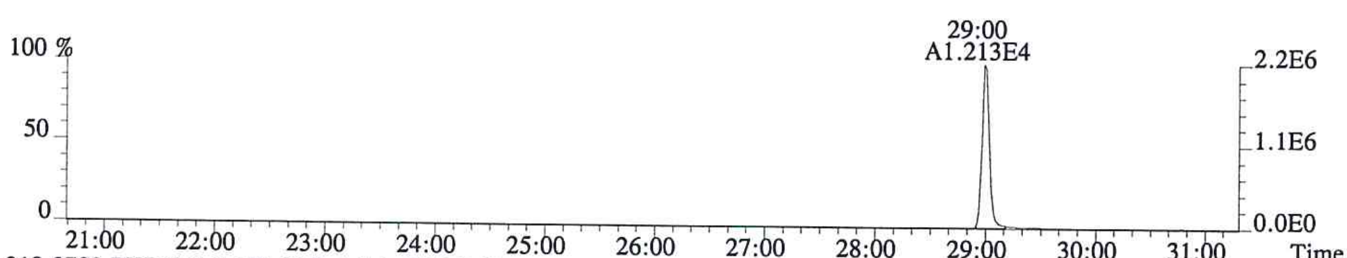
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9052.0,1.00%,F,T)



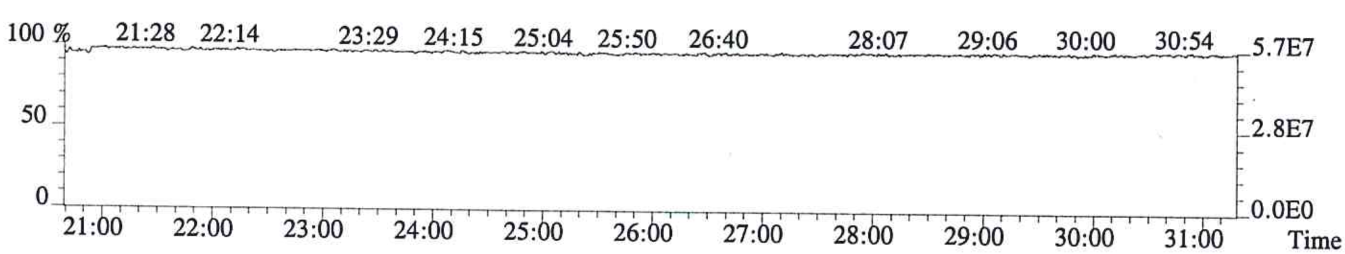
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



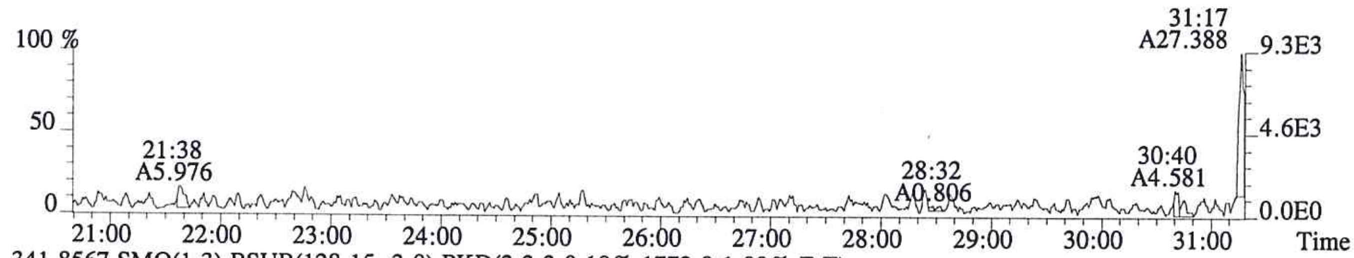
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



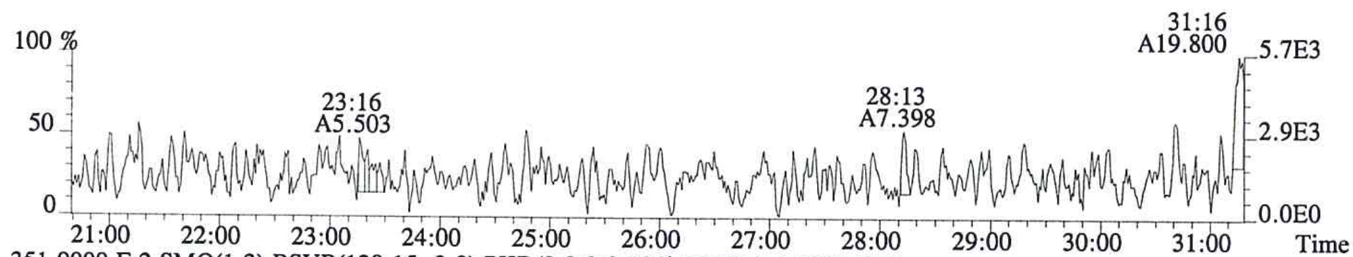
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



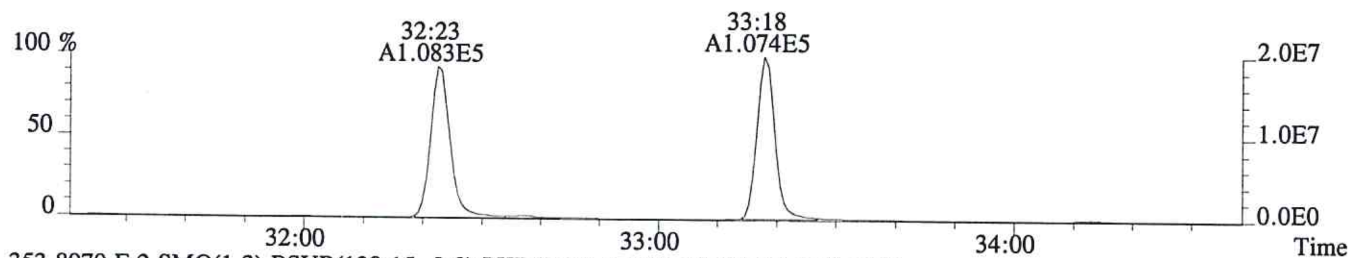
File:P603984 #1-756 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



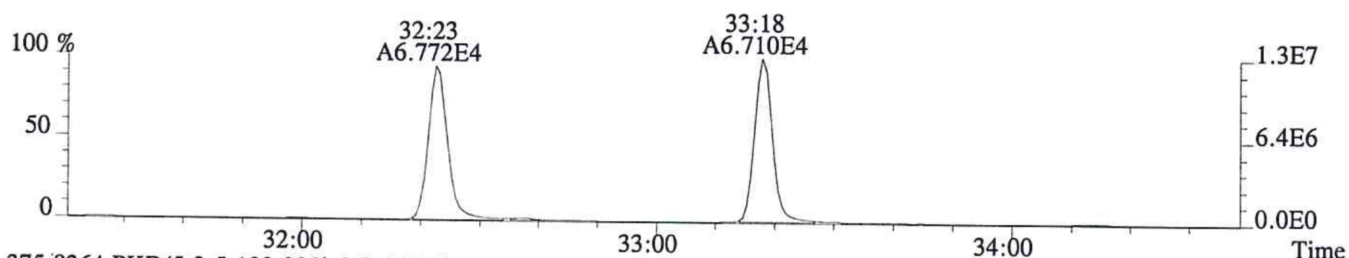
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



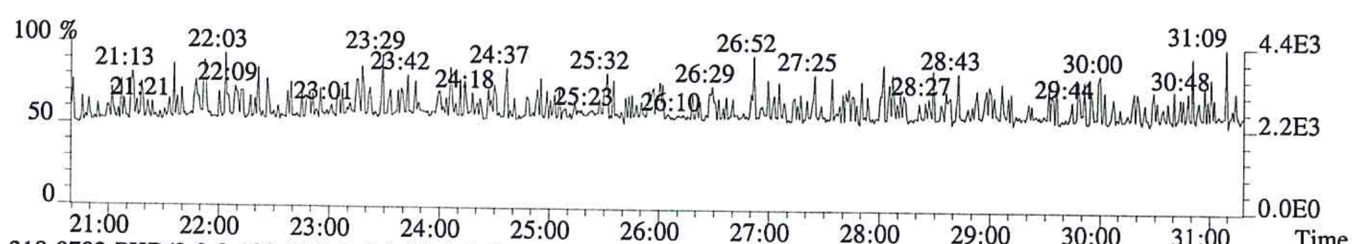
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20608.0,1.00%,F,T)



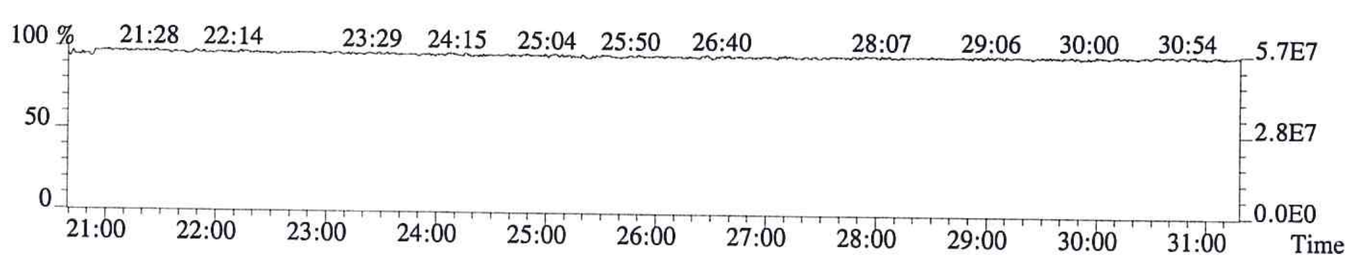
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15668.0,1.00%,F,T)



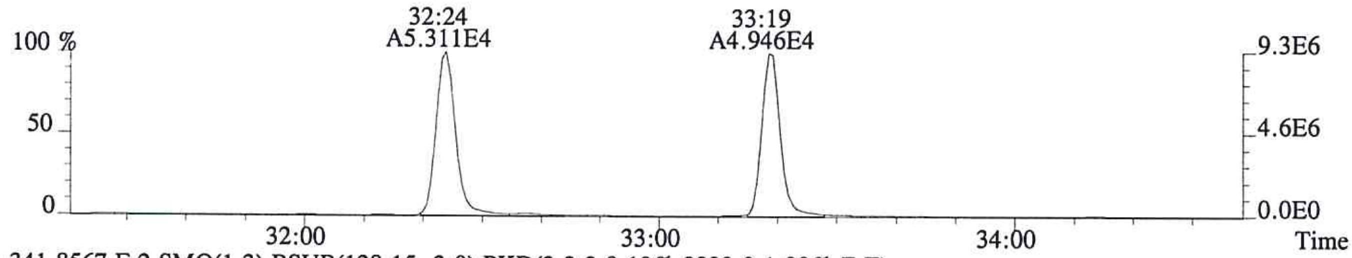
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



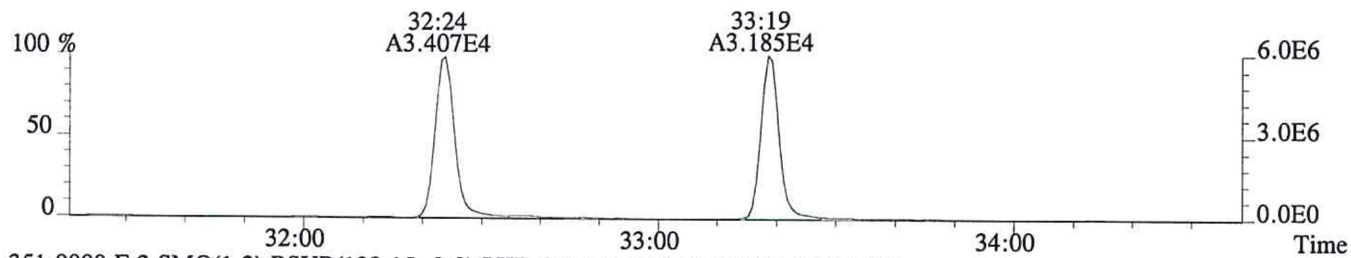
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



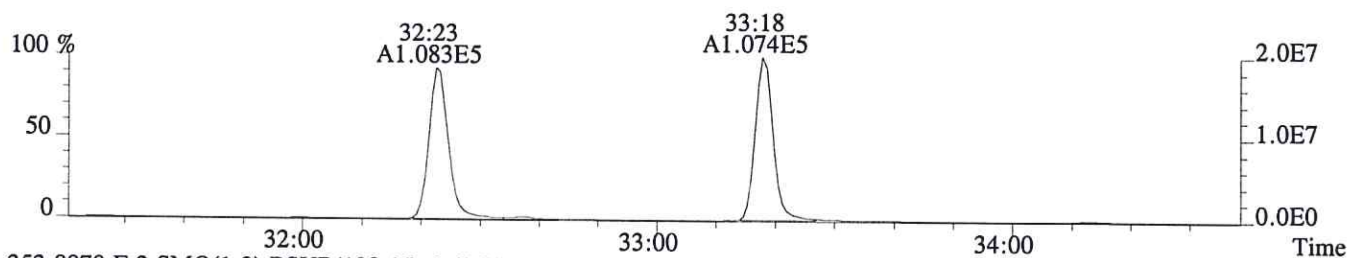
File:P603984 #1-298 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12960.0,1.00%,F,T)



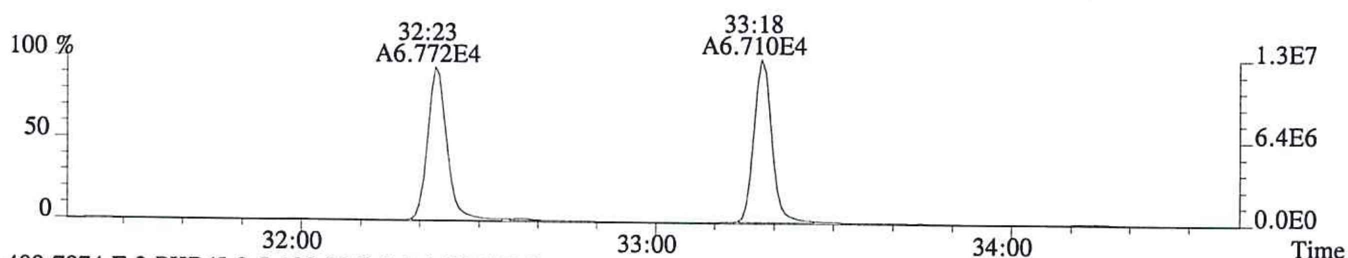
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9932.0,1.00%,F,T)



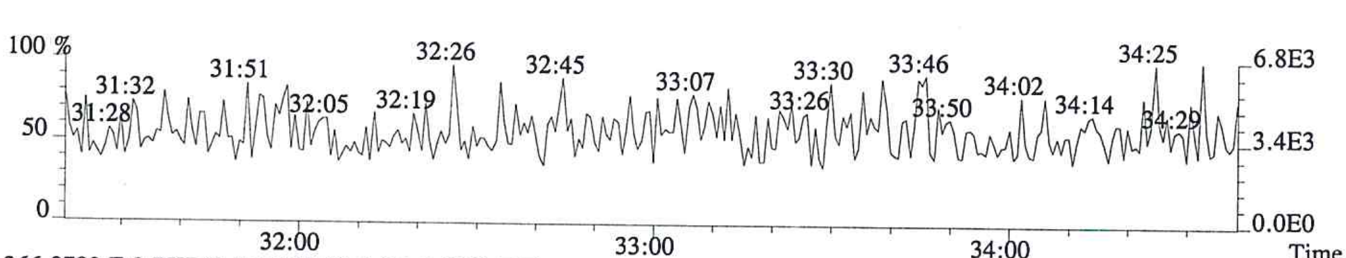
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20608.0,1.00%,F,T)



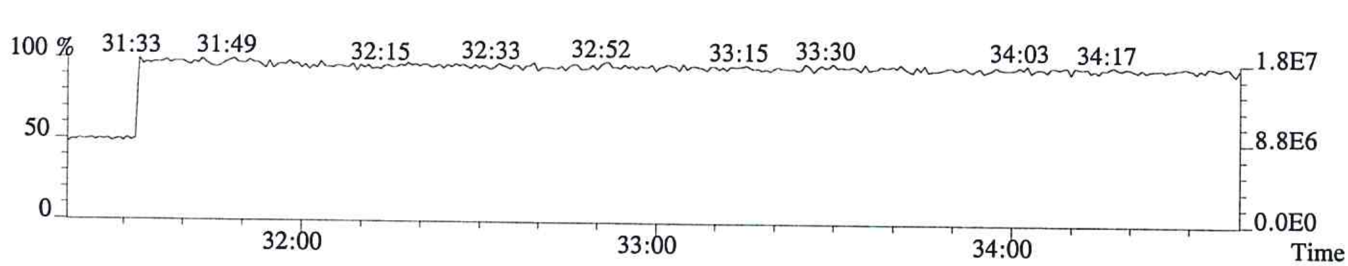
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15668.0,1.00%,F,T)



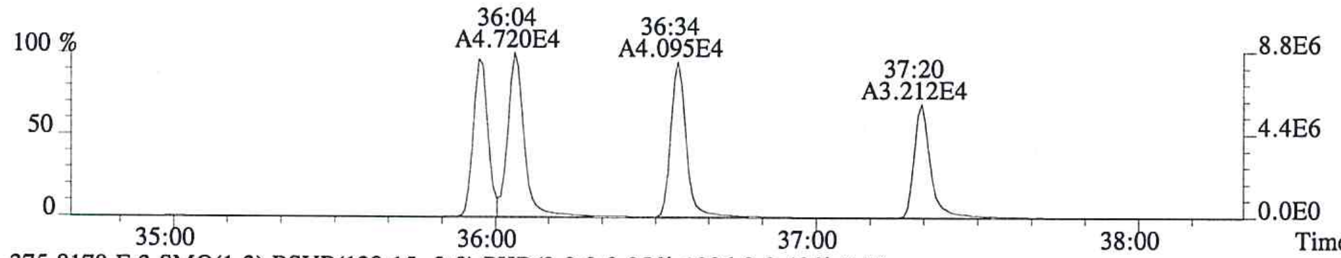
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



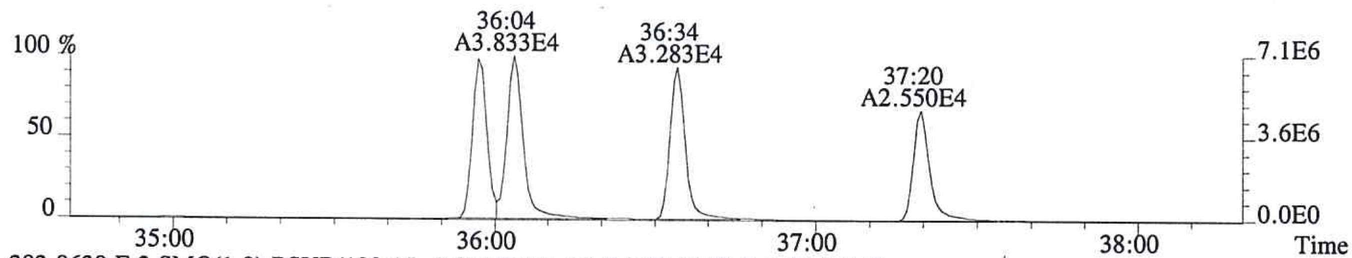
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



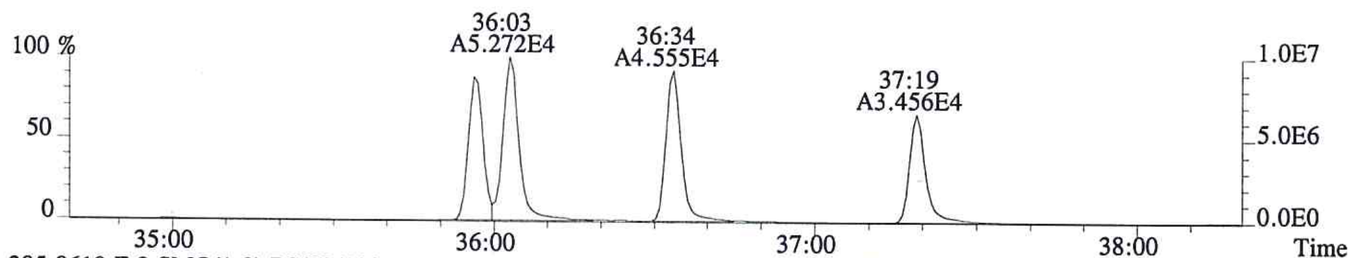
File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



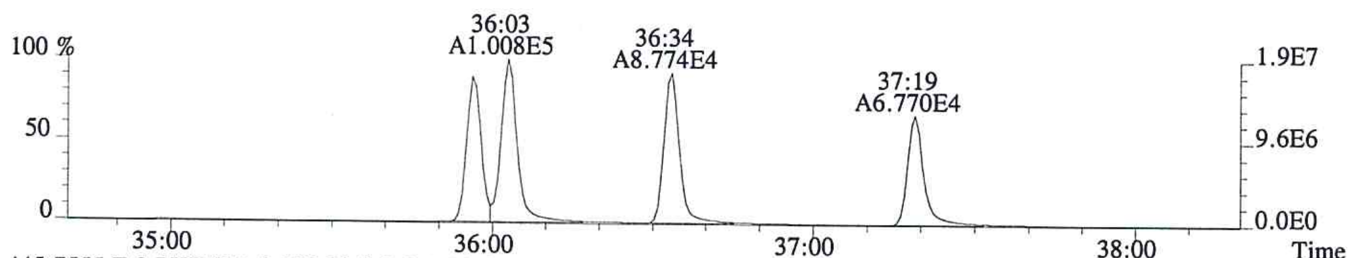
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



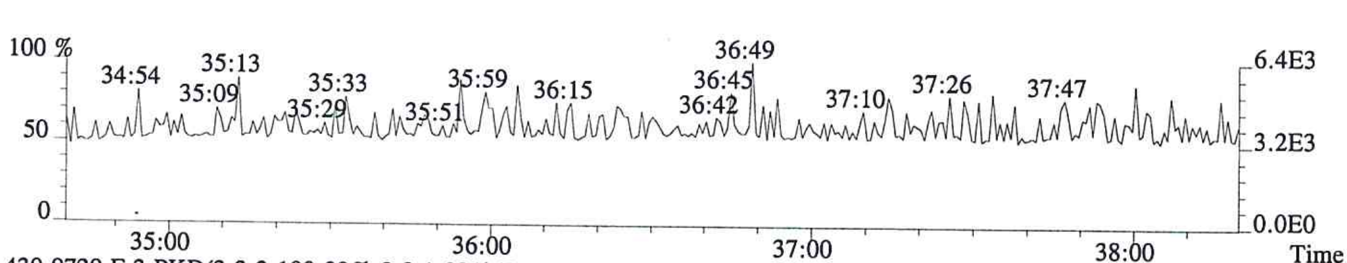
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.40%,F,T)



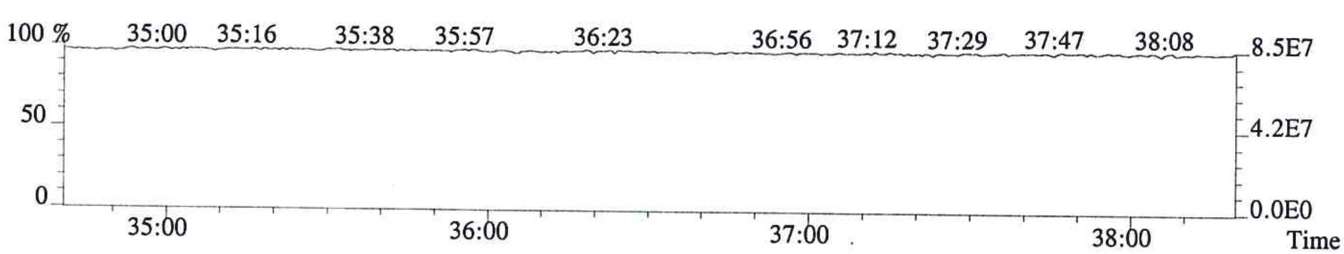
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)



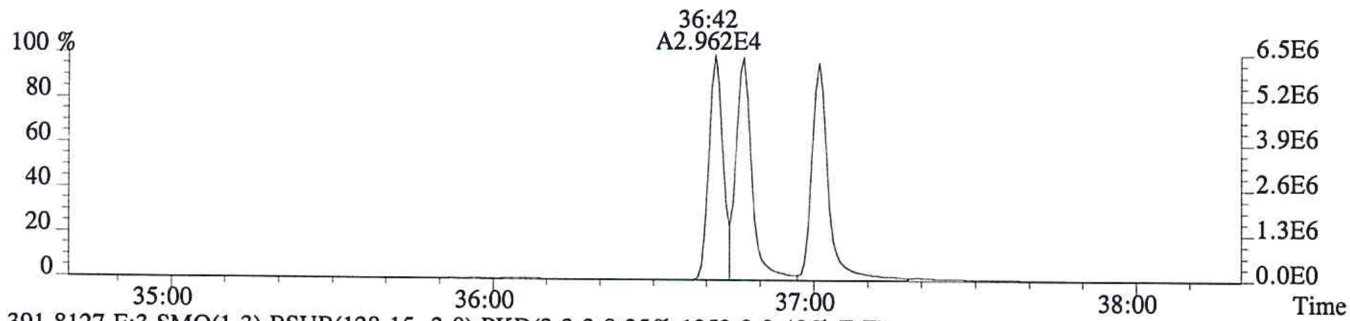
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



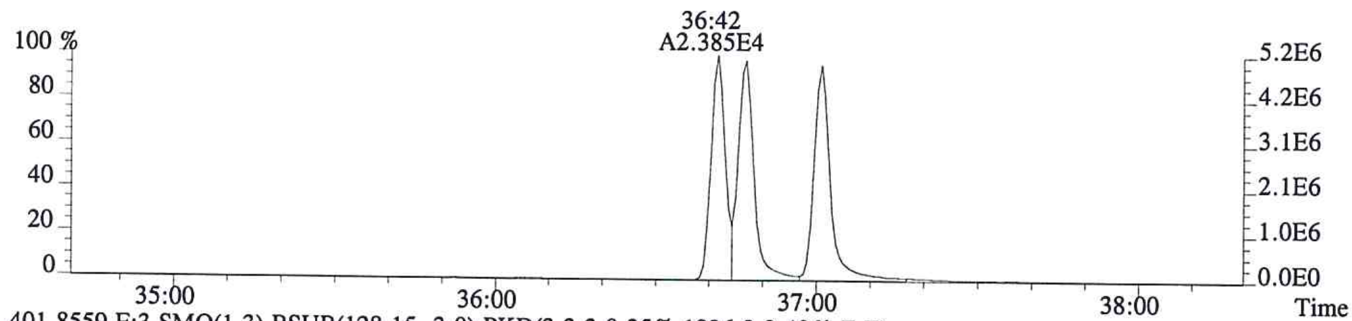
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



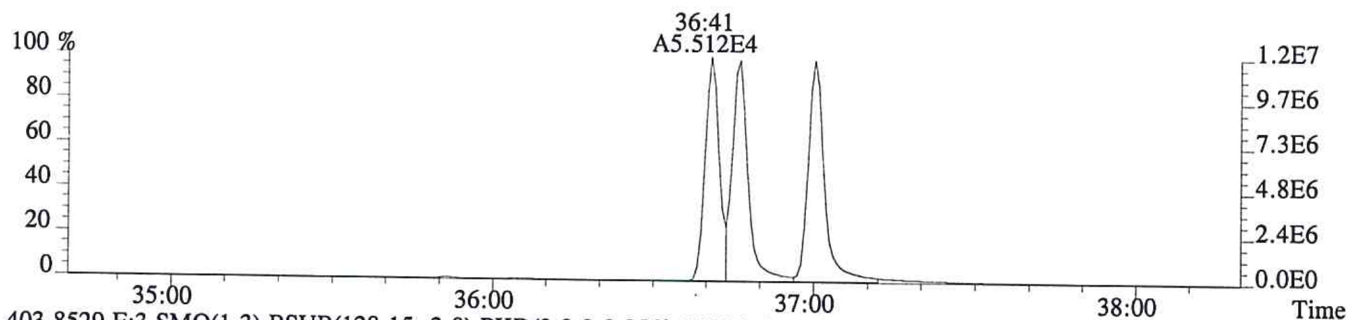
File:P603984 #1-329 Acq:25-JUN-2016 11:55:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



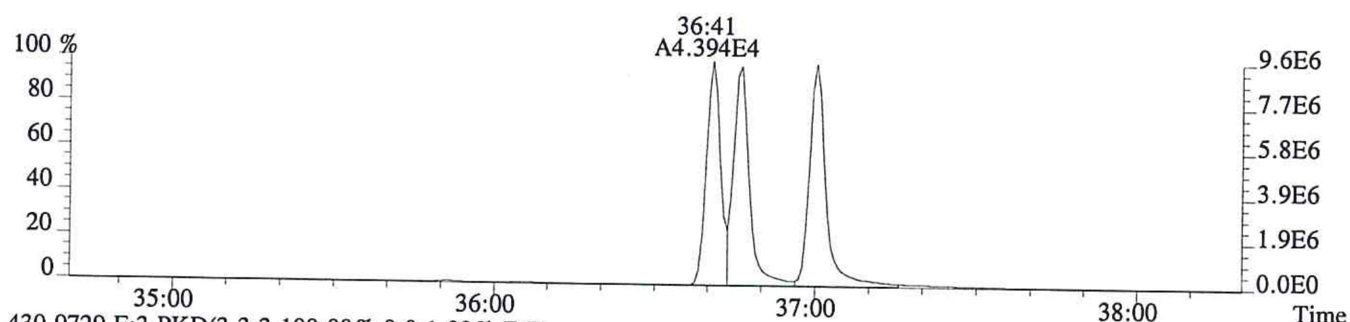
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



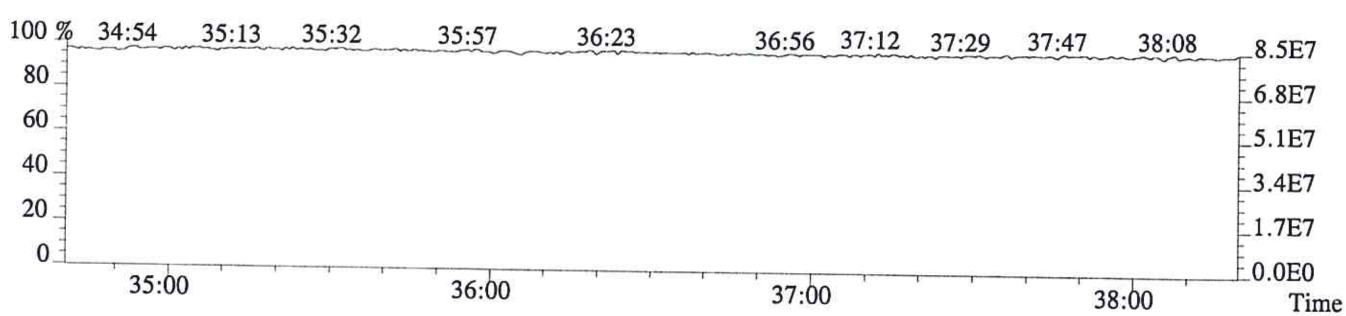
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.595e+04	2.078e+04	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	1.157e+05	7.439e+04	1.56	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	1.221e+04	1.554e+04	0.79	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:14	4.217e+04	5.242e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.222e+04	3.890e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:19	6.169e+04	3.829e+04	1.61	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.000e+04	3.842e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:59	4.265e+04	5.368e+04	0.79	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	29:00	3.003e+04	3.830e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:24	3.211e+04	4.076e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.705e+04	2.987e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	2.794e+04				no	0.945

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Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173639

Run #4 Filename P603985 Samp: 1 Inj: 1 Acquired: 25-JUN-16 12:52:51
Processed: 25-JUN-16 15:59:58 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.81e+06	1.30e+03	2.2e+03	3.64e+06	4.14e+03	8.8e+02
3	2,3,4,7,8-PeCDF	2.21e+07	2.52e+04	8.8e+02	1.43e+07	2.29e+04	6.2e+02
11	2,3,7,8-TCDD	2.23e+06	1.02e+03	2.2e+03	2.90e+06	1.31e+03	2.2e+03
18	13C-2,3,7,8-TCDF	7.32e+06	6.01e+03	1.2e+03	9.03e+06	4.38e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	1.09e+07	1.48e+04	7.4e+02	6.85e+06	8.31e+03	8.2e+02
20	13C-2,3,4,7,8-PeCDF	1.18e+07	1.48e+04	8.0e+02	7.28e+06	8.31e+03	8.8e+02
24	13C-1,2,3,7,8,9-HxCDF	3.79e+06	8.16e+02	4.6e+03	7.39e+06	2.79e+03	2.6e+03
26	13C-1,2,3,4-TCDF	6.97e+06	6.01e+03	1.2e+03	8.78e+06	4.38e+03	2.0e+03
27	13C-2,3,7,8-TCDD	5.43e+06	9.69e+03	5.6e+02	6.86e+06	4.18e+03	1.6e+03
33	13C-1,2,3,4-TCDD	5.94e+06	9.69e+03	6.1e+02	7.48e+06	4.18e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.80e+06	2.05e+03	3.3e+03	5.47e+06	2.34e+03	2.3e+03
35	37Cl-2,3,7,8-TCDD	5.21e+06	2.06e+03	2.5e+03			

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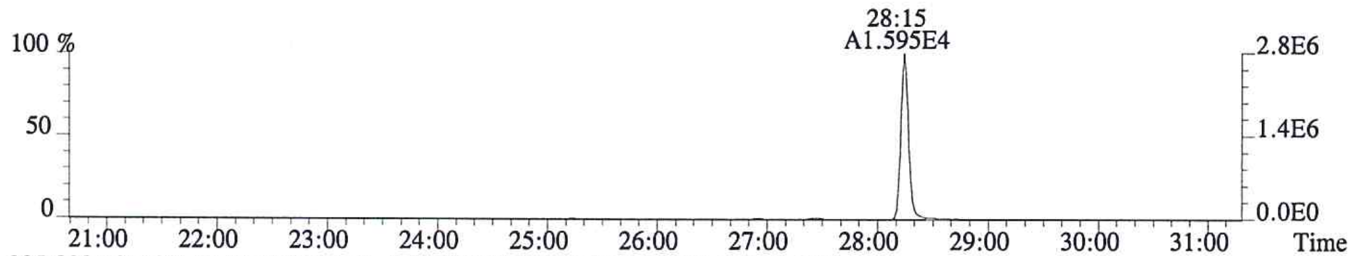
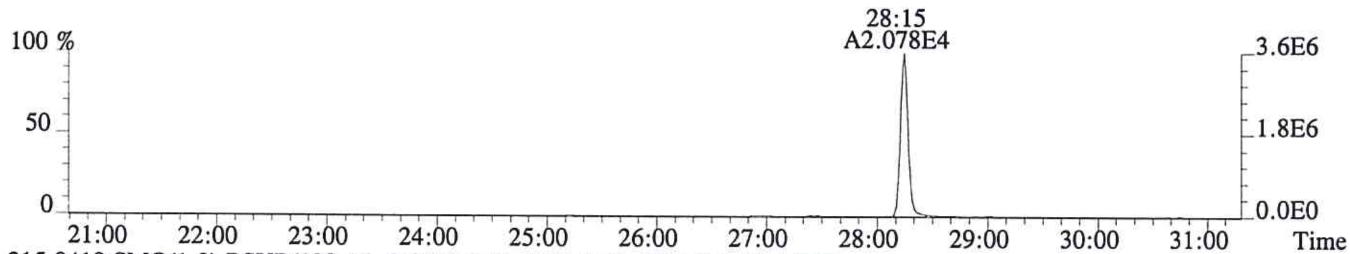
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

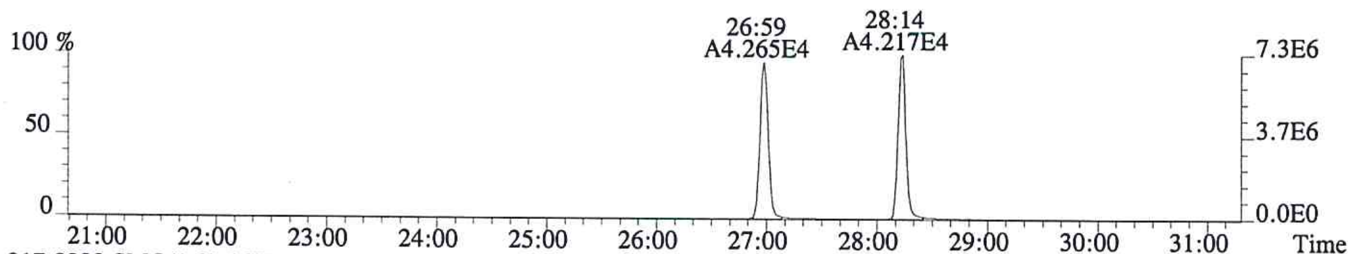
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



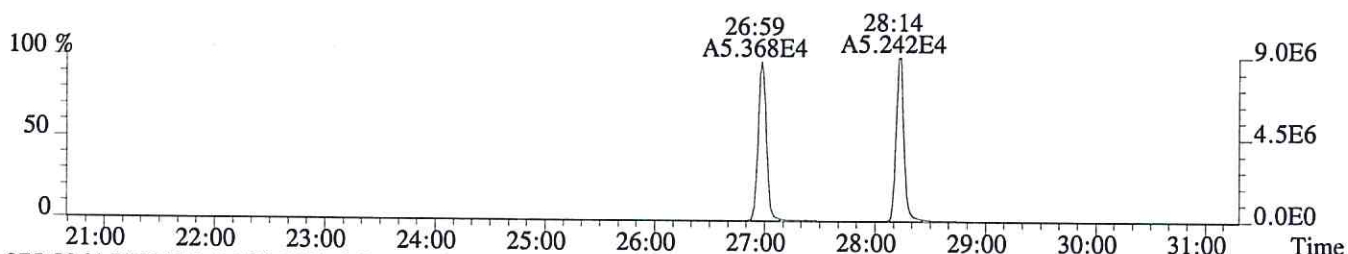
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4140.0,1.00%,F,T)



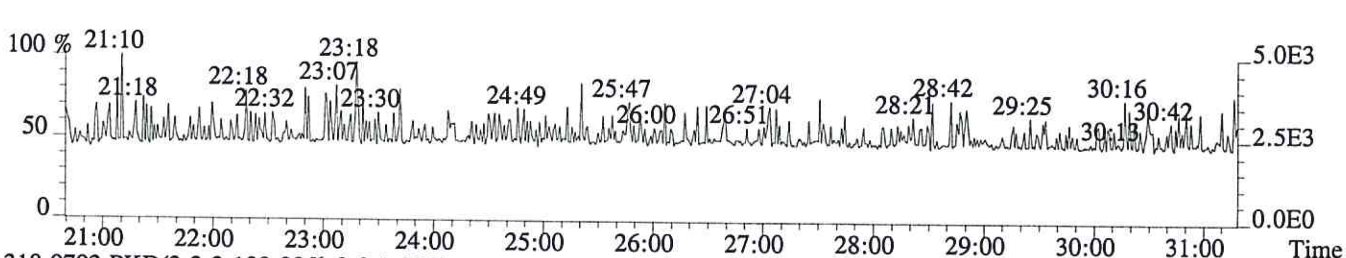
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6012.0,1.00%,F,T)



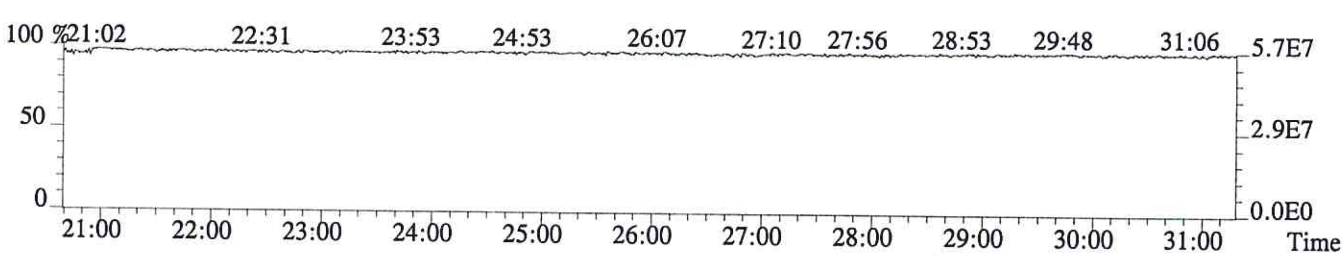
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4384.0,1.00%,F,T)



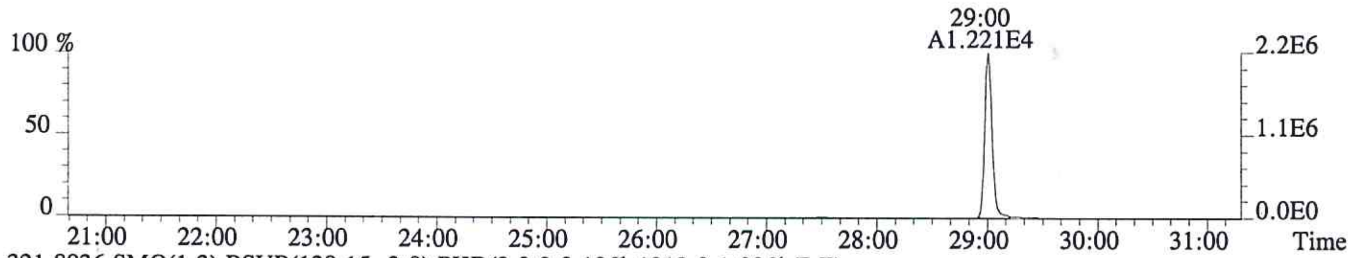
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



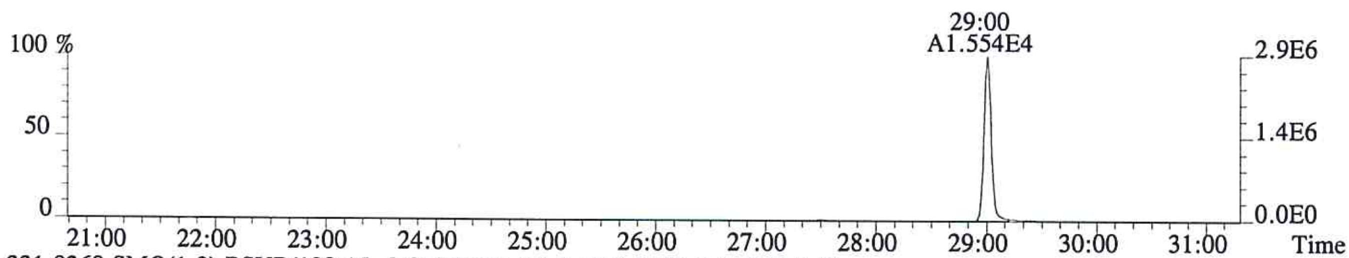
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



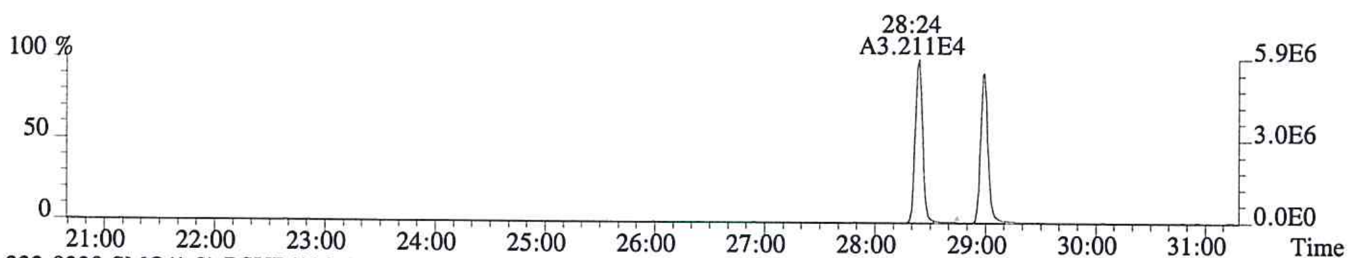
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



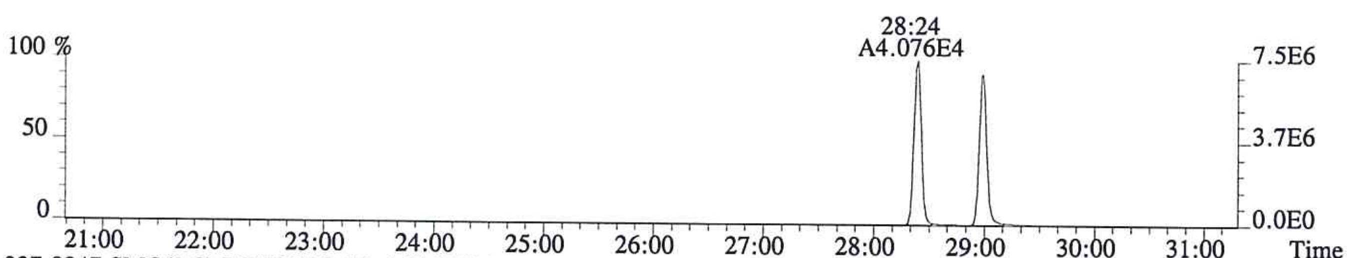
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



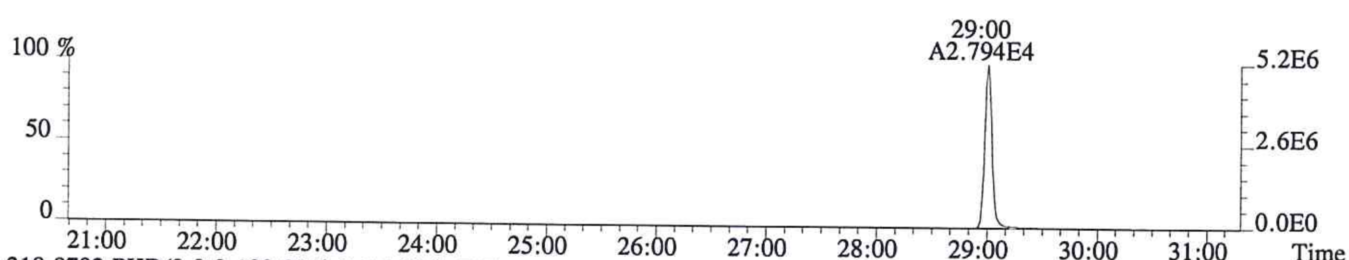
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9688.0,1.00%,F,T)



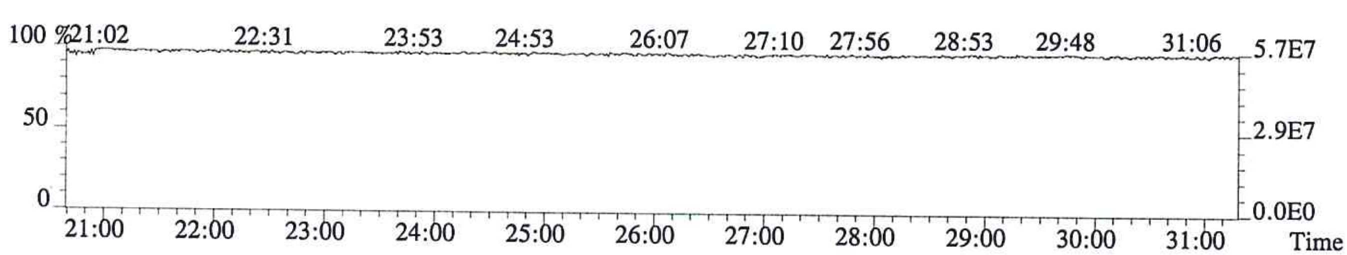
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



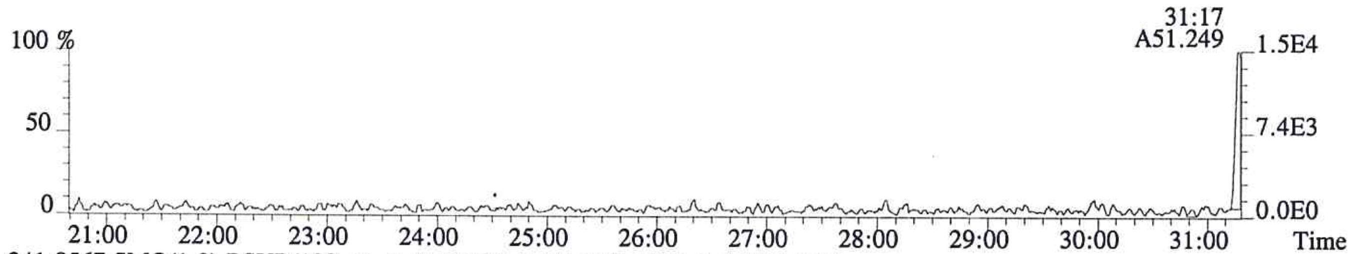
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



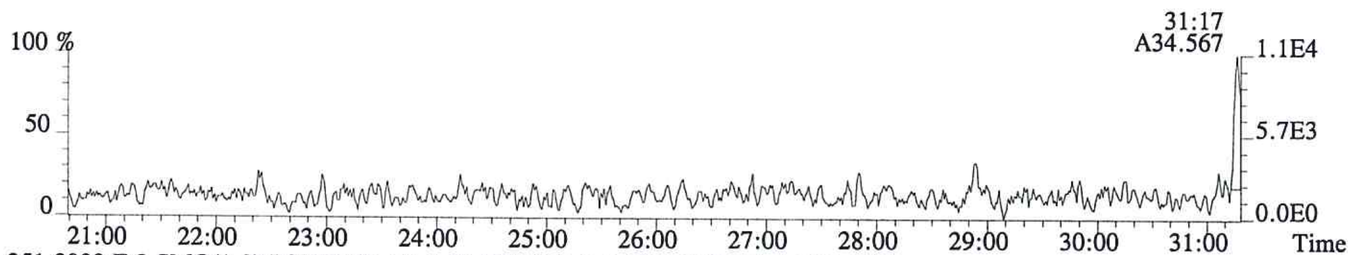
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



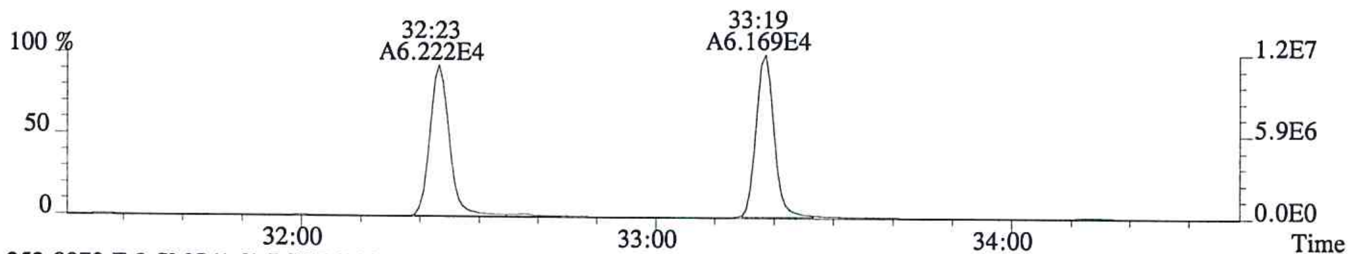
File:P603985 #1-756 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



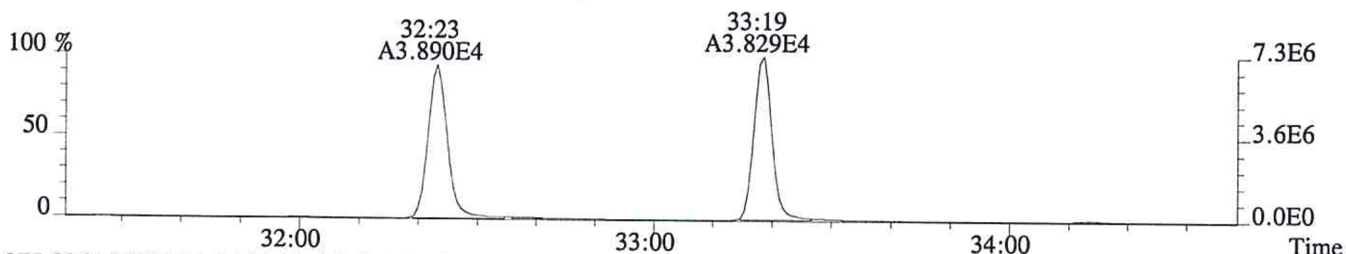
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



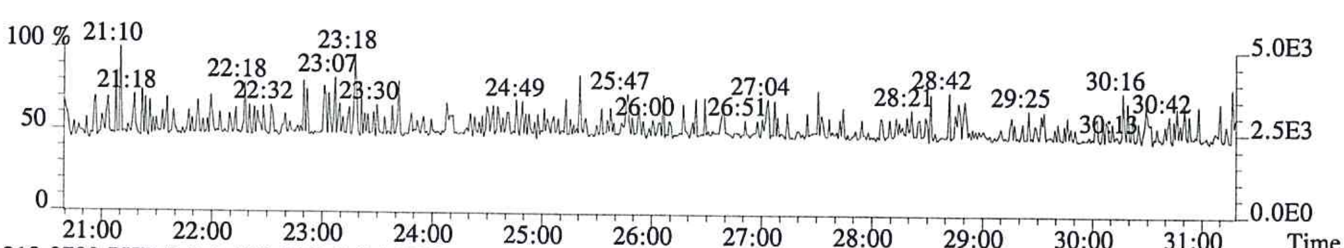
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14760.0,1.00%,F,T)



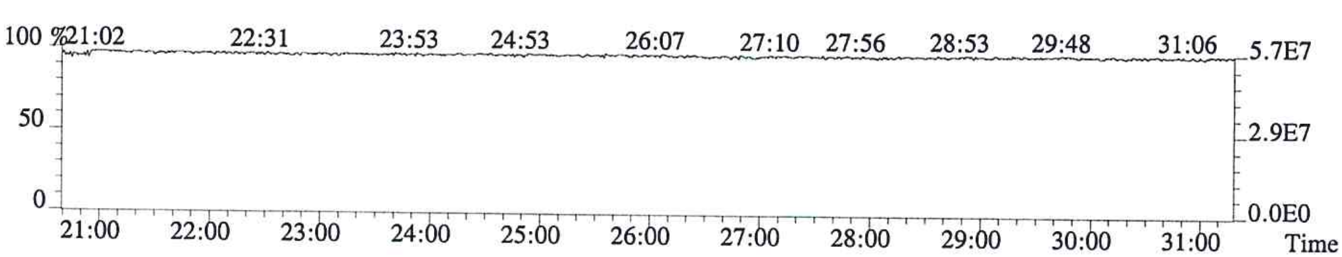
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8308.0,1.00%,F,T)



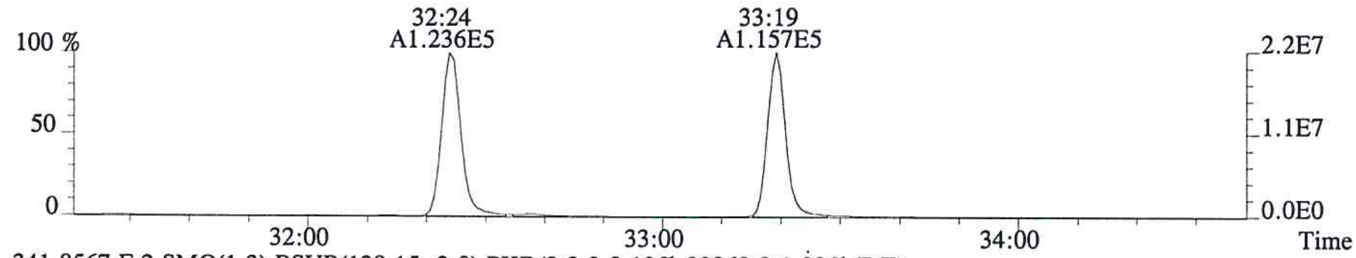
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



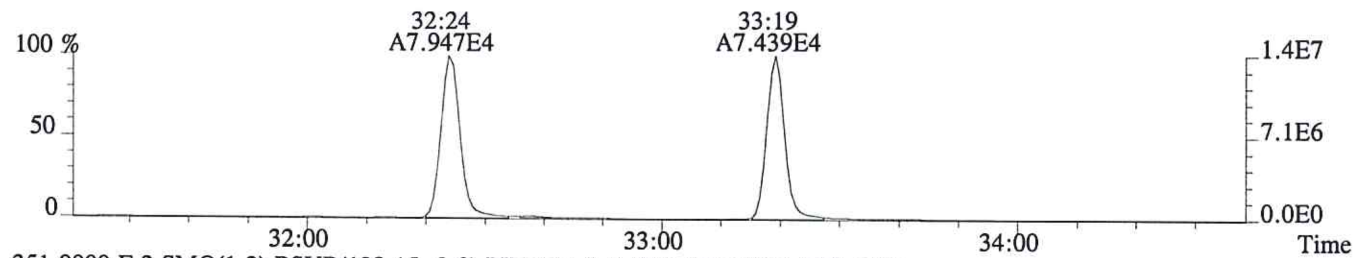
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



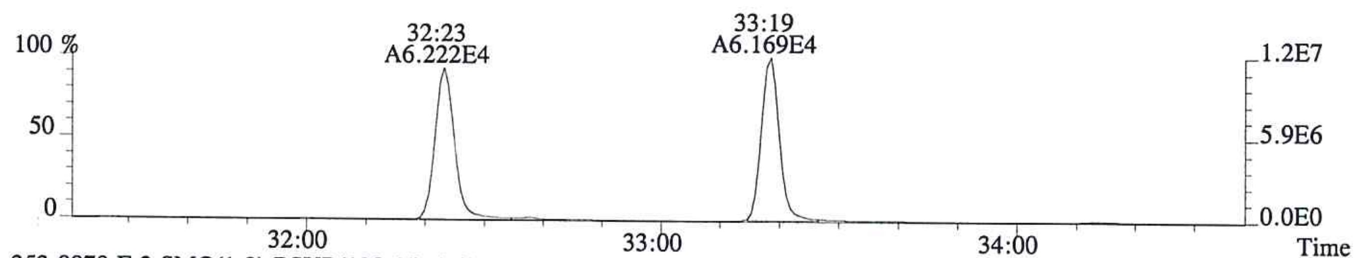
File:P603985 #1-298 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25184.0,1.00%,F,T)



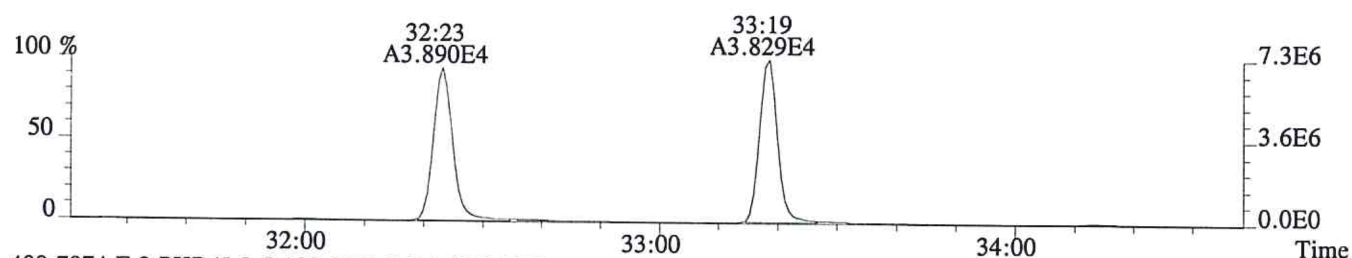
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,22868.0,1.00%,F,T)



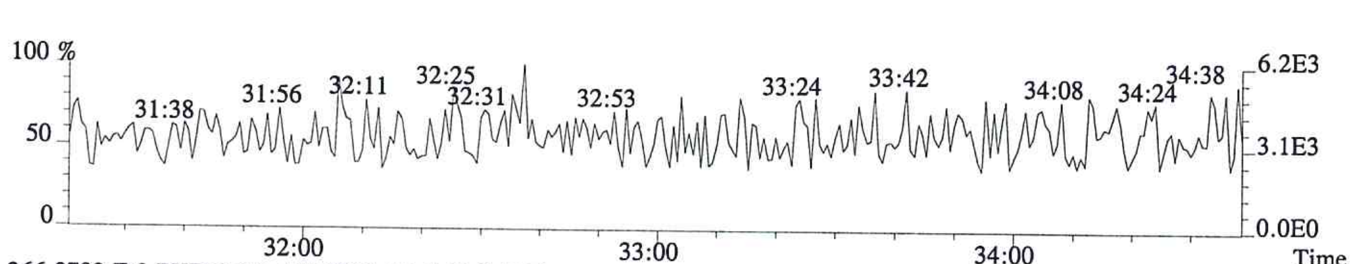
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14760.0,1.00%,F,T)



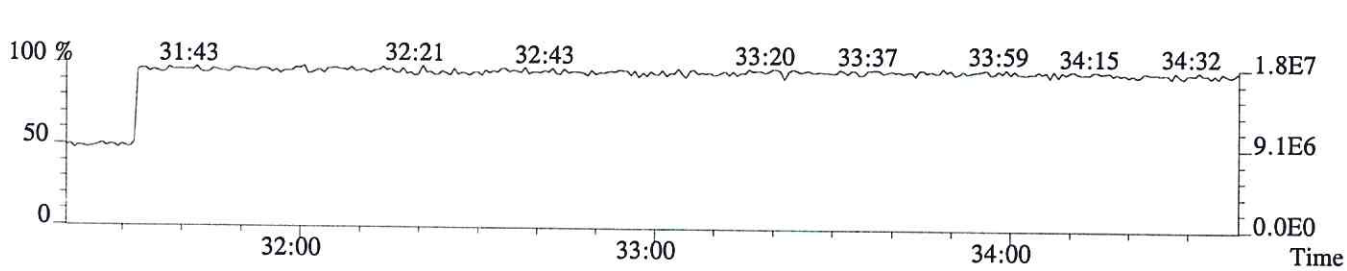
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8308.0,1.00%,F,T)



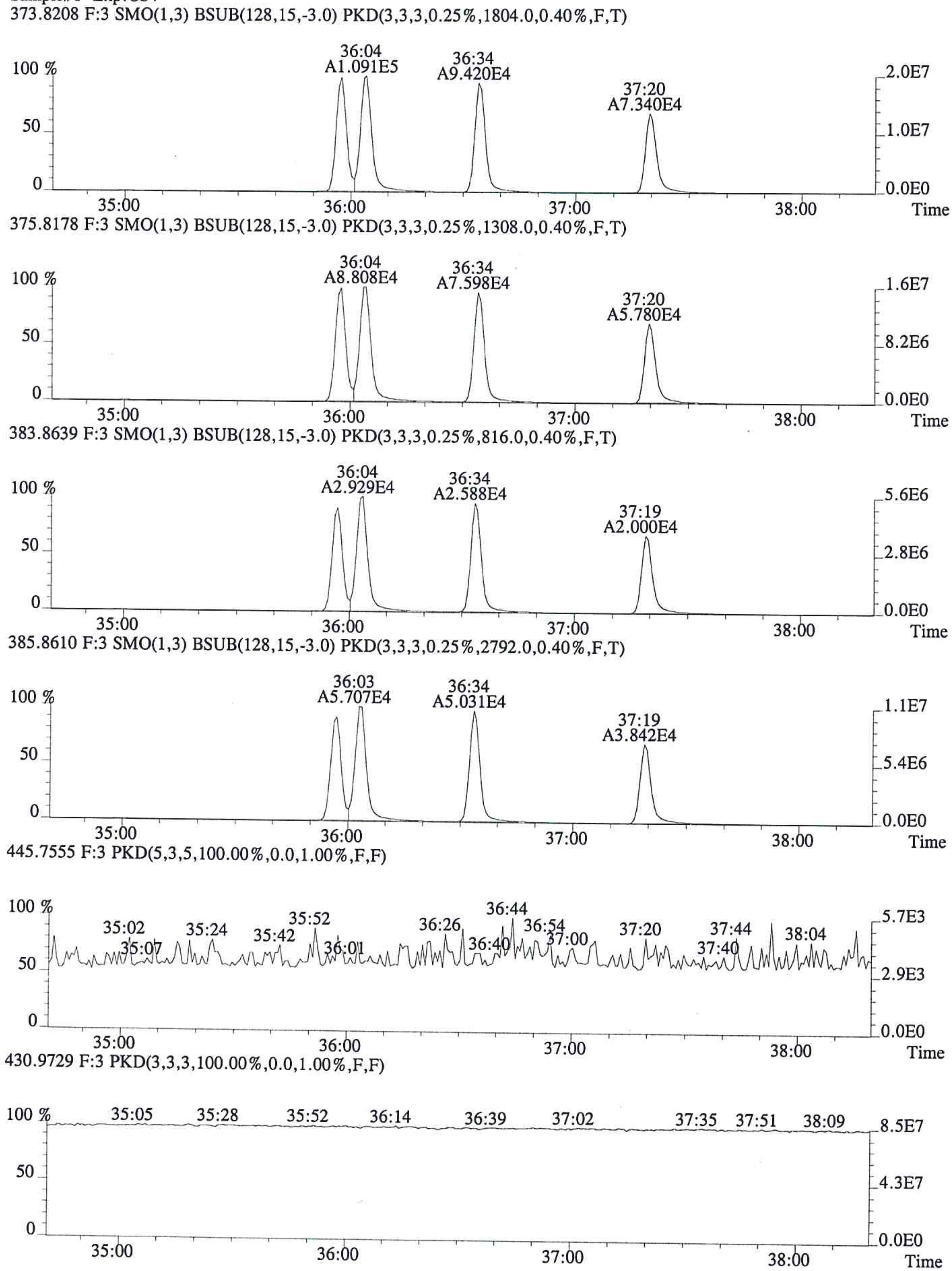
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



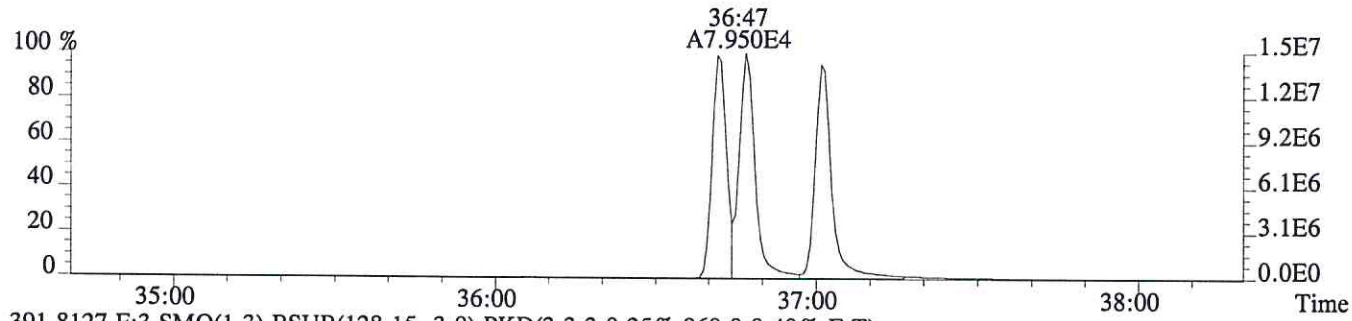
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



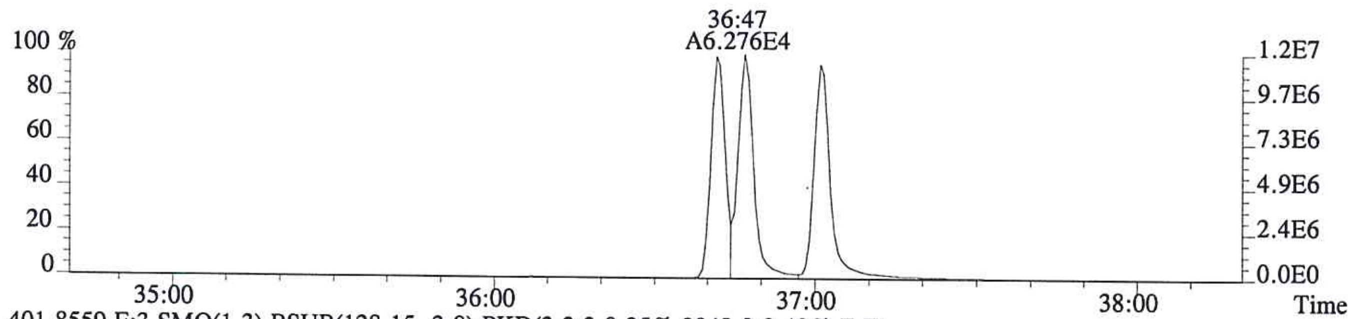
File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4



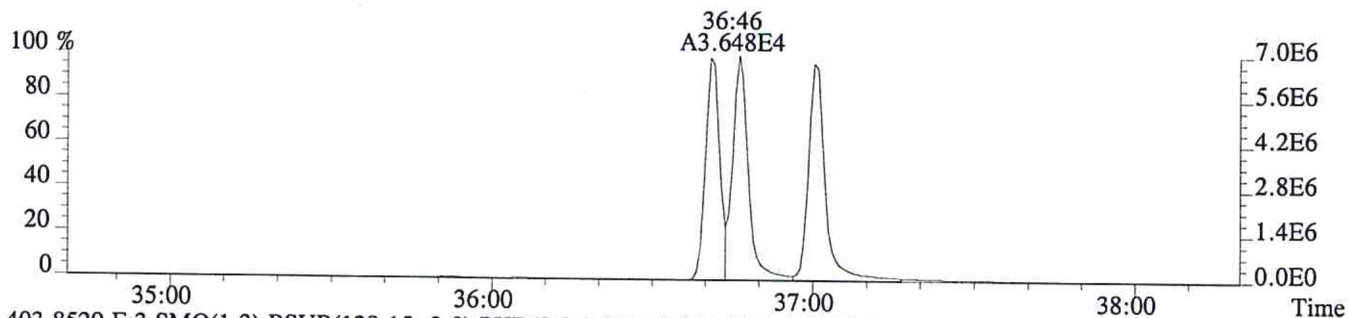
File:P603985 #1-329 Acq:25-JUN-2016 12:52:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



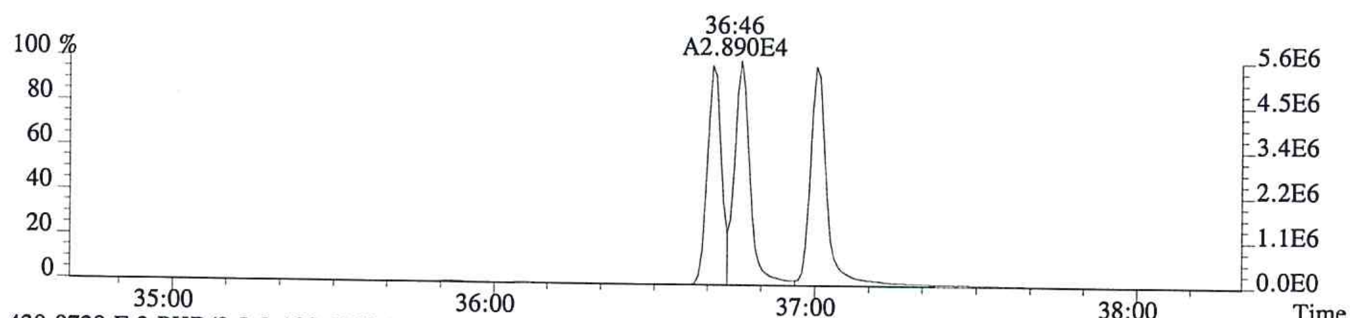
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



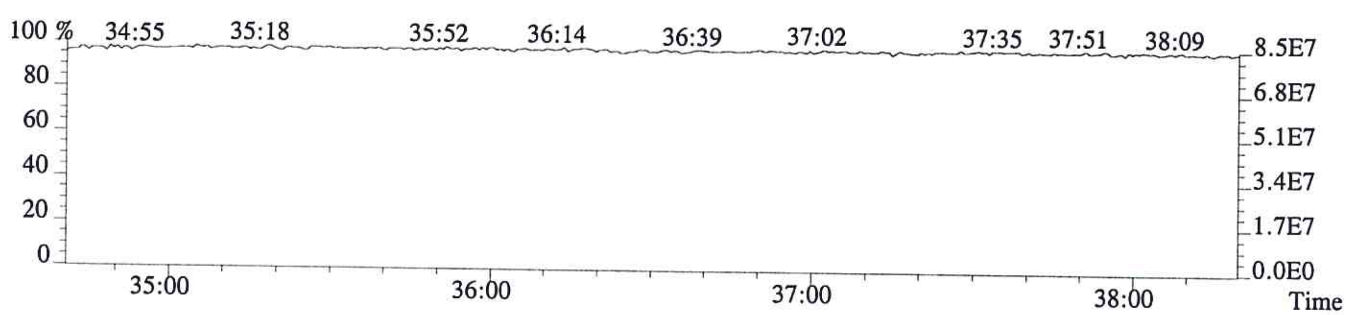
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2048.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2344.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	8.193e+04	1.059e+05	0.77	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	6.139e+05	3.954e+05	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	6.435e+04	8.269e+04	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.256e+04	5.313e+04	0.80	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	6.522e+04	4.053e+04	1.61	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.412e+04	4.053e+04	1.58	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	2.154e+04	4.185e+04	0.51	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.844e+04	6.029e+04	0.80	yes	yes	1.325
27	IS	13C-2,3,7,8-TCDD	28:59	3.050e+04	3.908e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.234e+04	4.086e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	3.943e+04	3.156e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	1.476e+05				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
173640

Run #5 Filename P603986 Samp: 1 Inj: 1 Acquired: 25-JUN-16 13:45:46
Processed: 25-JUN-16 15:59:59 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+07	1.26e+03	1.2e+04	1.91e+07	4.39e+03	4.3e+03
3	2,3,4,7,8-PeCDF	1.21e+08	1.23e+05	9.8e+02	7.74e+07	7.44e+04	1.0e+03
11	2,3,7,8-TCDD	1.25e+07	1.75e+03	7.1e+03	1.59e+07	1.15e+03	1.4e+04
18	13C-2,3,7,8-TCDF	7.51e+06	5.53e+03	1.4e+03	9.32e+06	2.96e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.41e+04	8.4e+02	7.38e+06	7.98e+03	9.3e+02
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.41e+04	8.8e+02	7.76e+06	7.98e+03	9.7e+02
24	13C-1,2,3,7,8,9-HxCDF	4.21e+06	1.34e+03	3.1e+03	8.22e+06	2.01e+03	4.1e+03
26	13C-1,2,3,4-TCDF	8.06e+06	5.53e+03	1.5e+03	1.01e+07	2.96e+03	3.4e+03
27	13C-2,3,7,8-TCDD	5.76e+06	8.03e+03	7.2e+02	7.36e+06	3.50e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.04e+06	8.03e+03	7.5e+02	7.69e+06	3.50e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	7.59e+06	2.36e+03	3.2e+03	6.21e+06	1.56e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.82e+07	2.23e+03	1.3e+04			

ALS ENVIRONMENTAL
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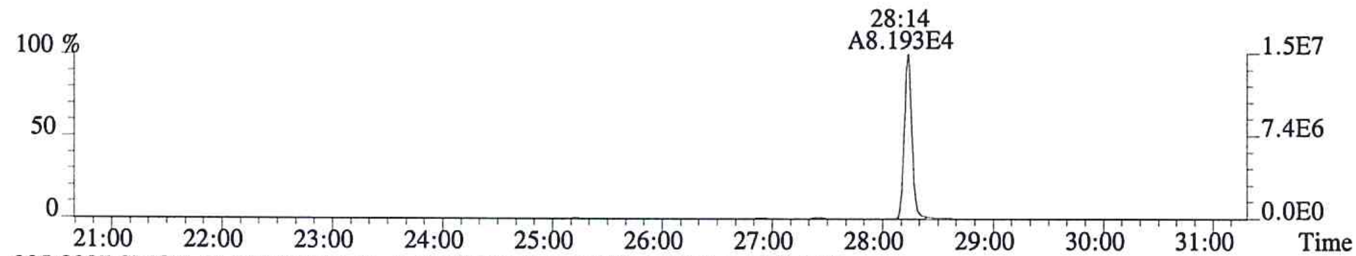
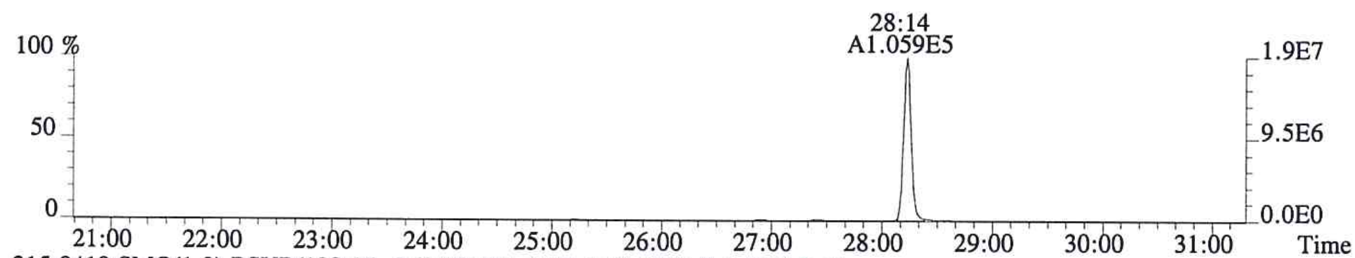
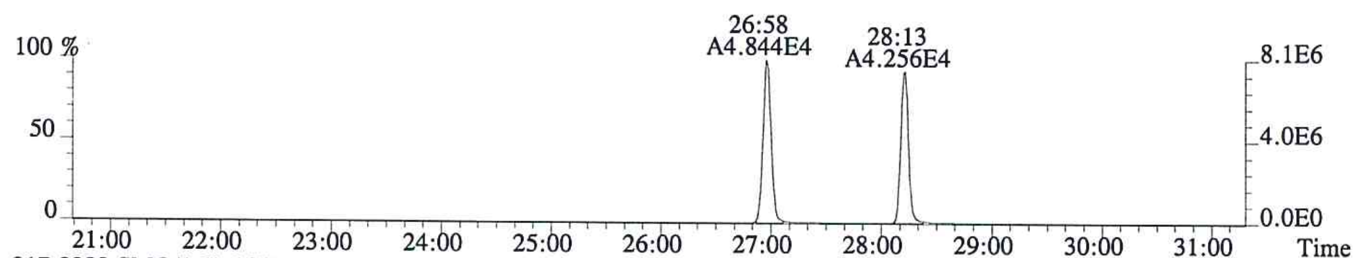
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



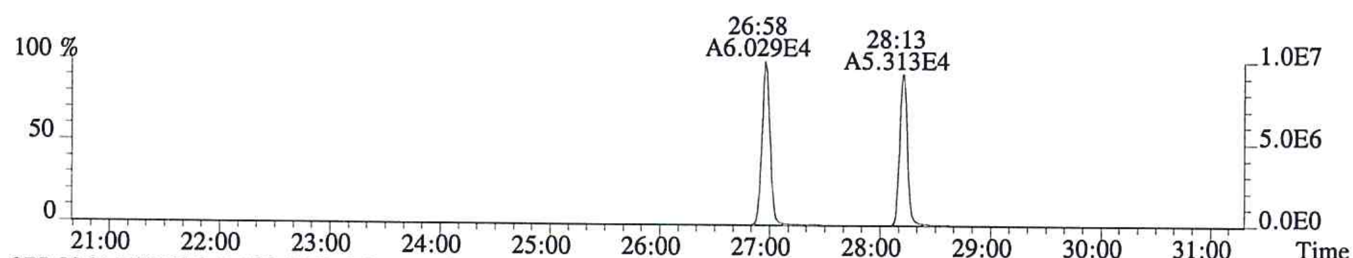
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



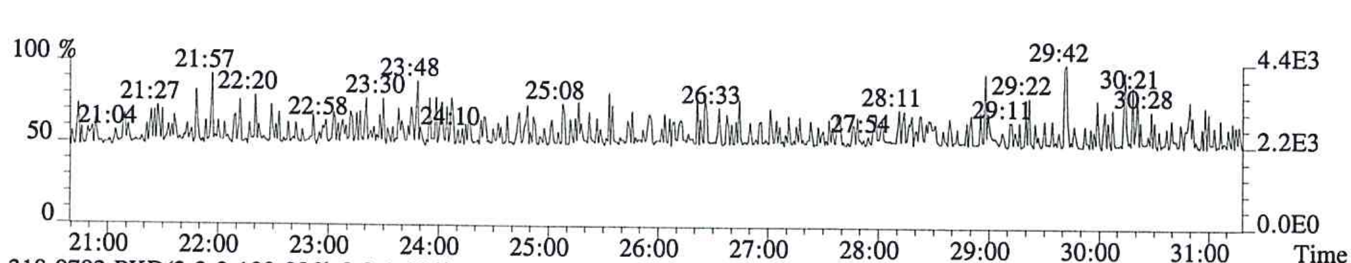
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5532.0,1.00%,F,T)



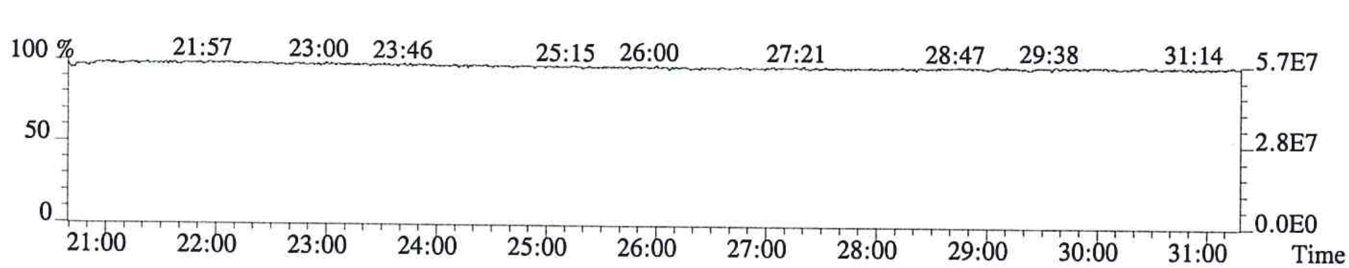
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

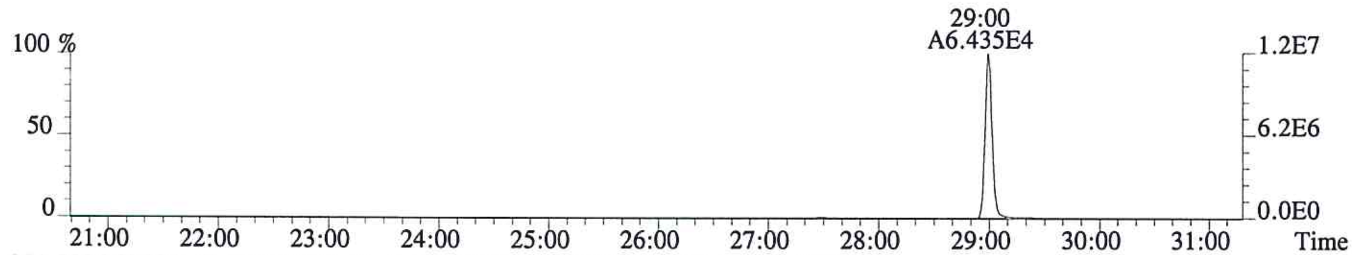


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

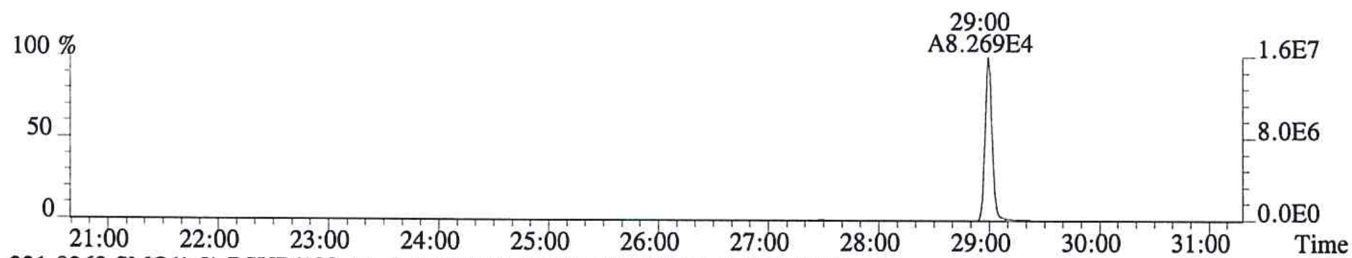


File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

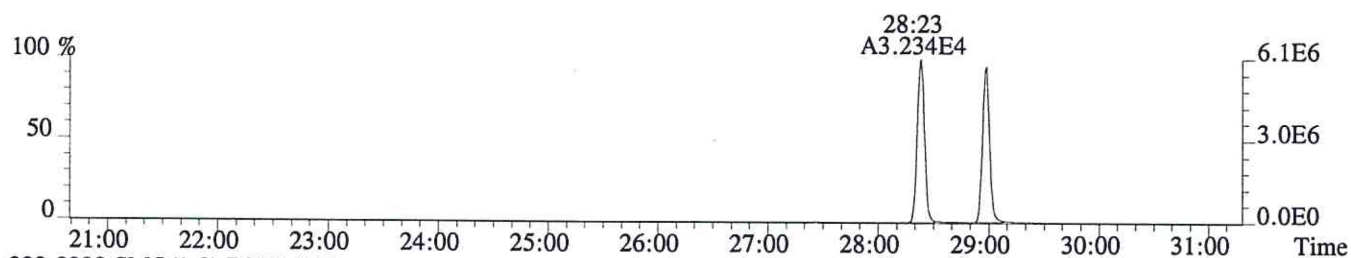
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



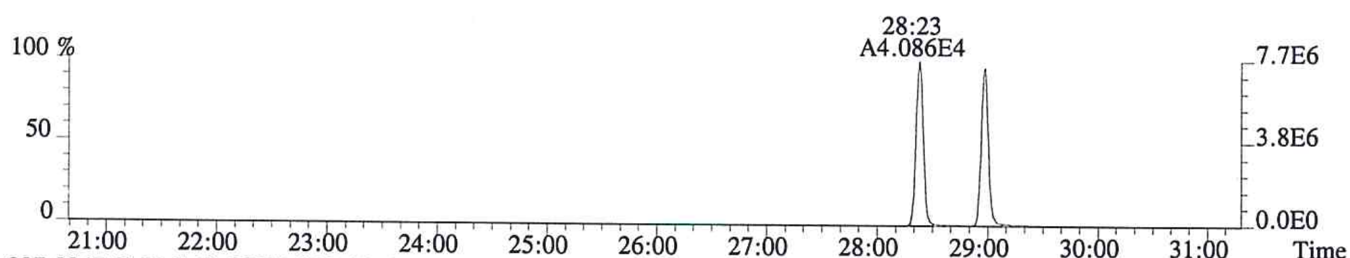
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



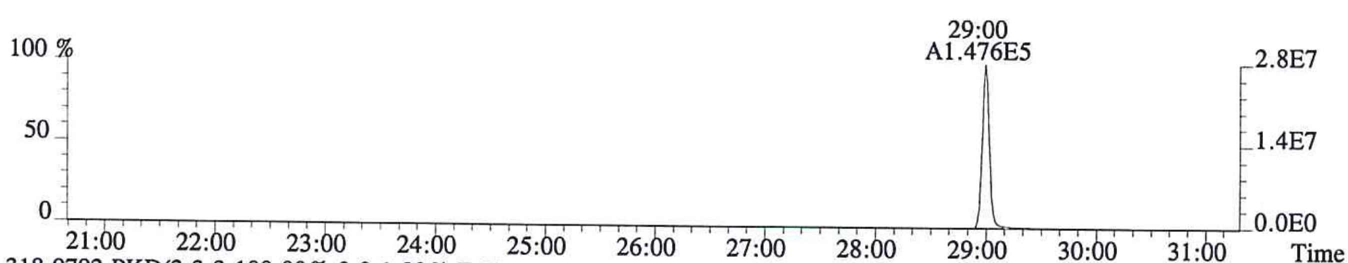
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8032.0,1.00%,F,T)



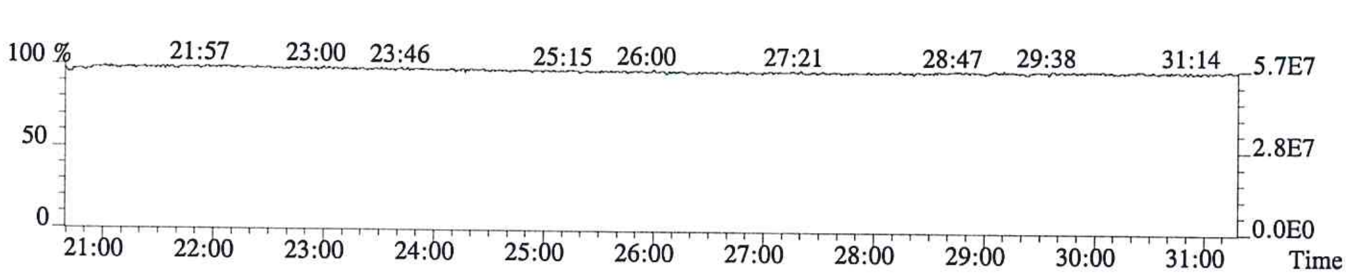
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



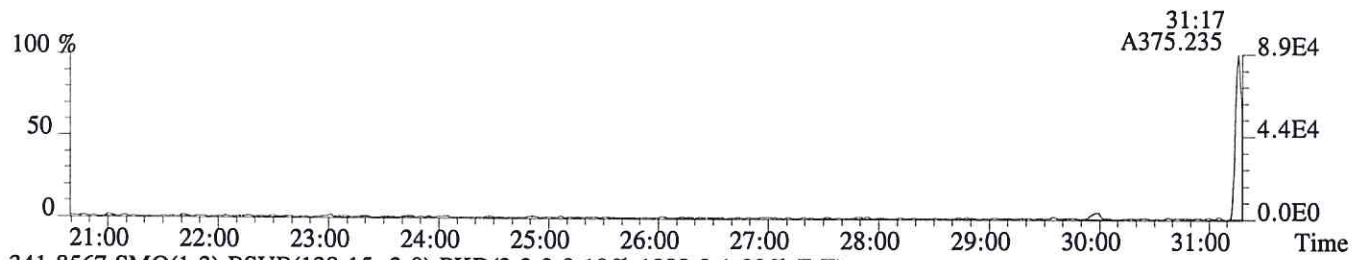
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



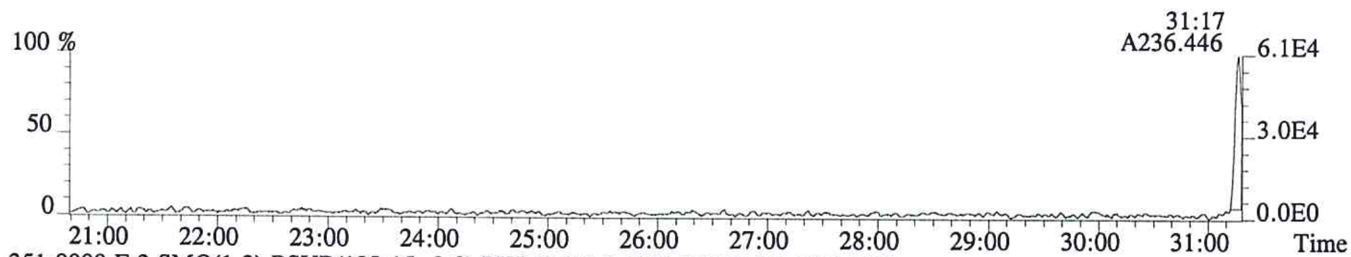
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



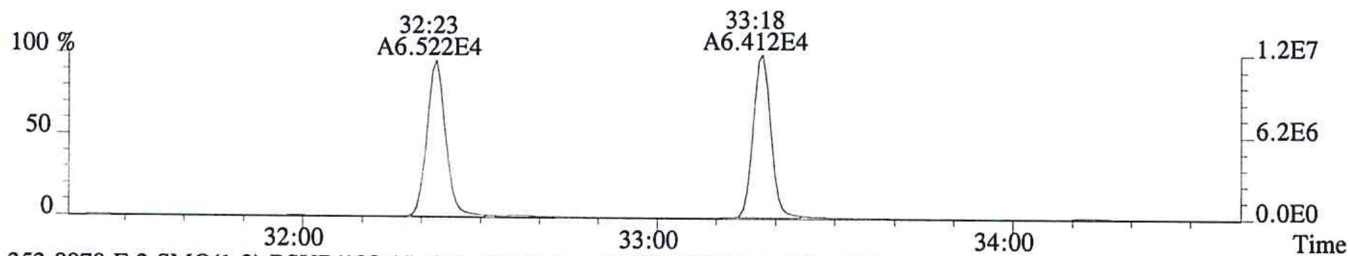
File:P603986 #1-756 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



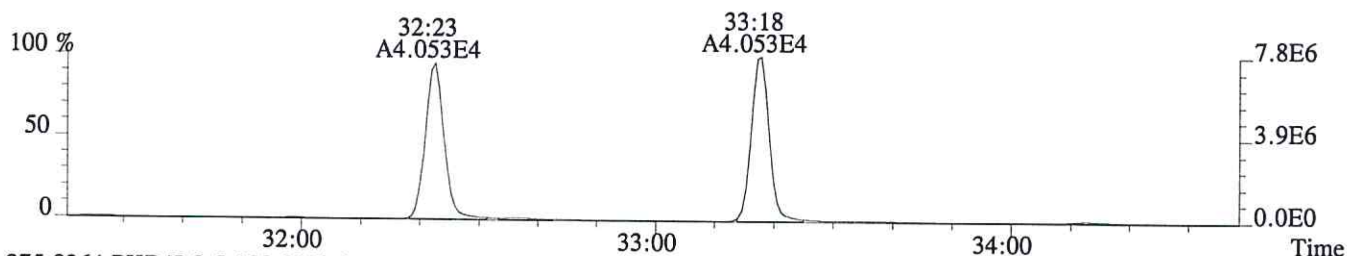
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



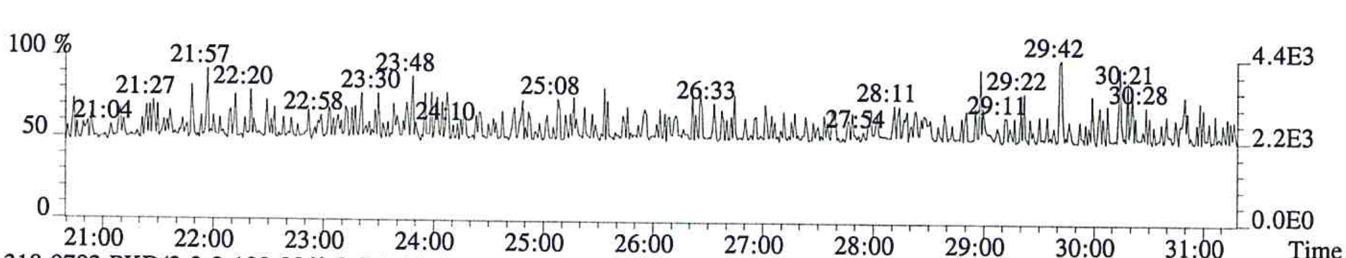
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



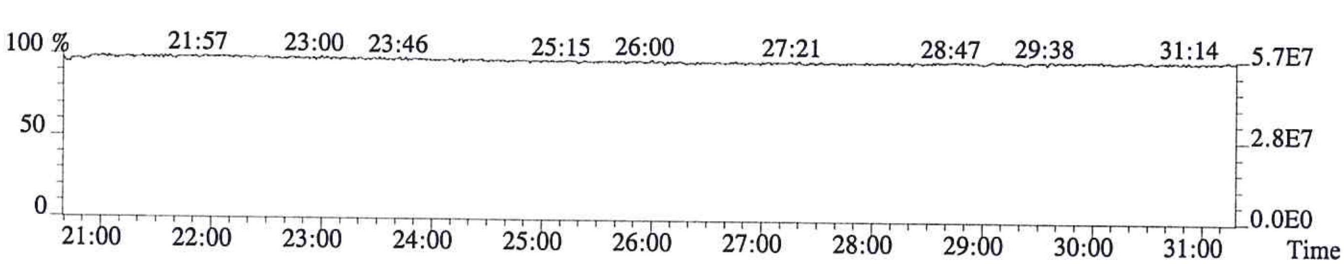
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

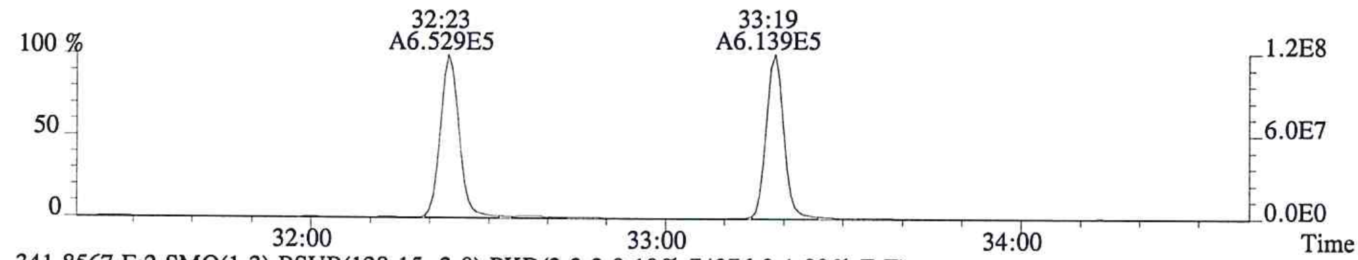


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

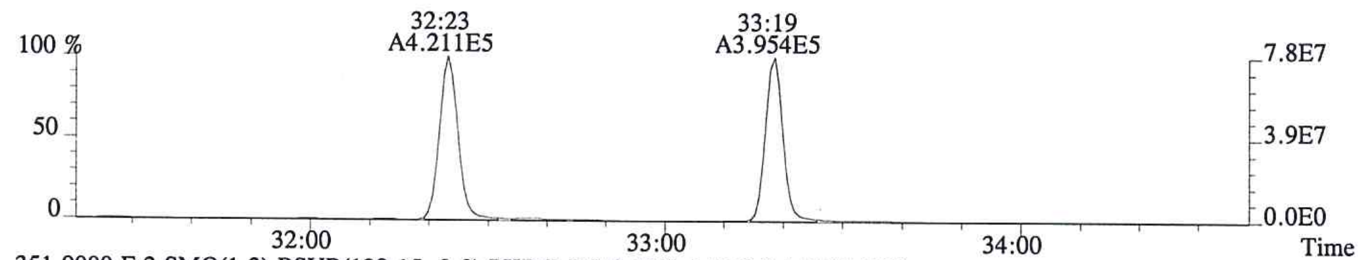


File:P603986 #1-298 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

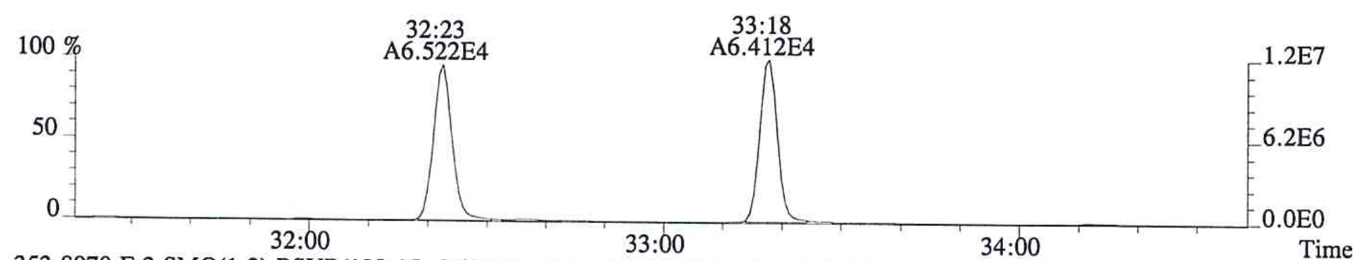
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,122600.0,1.00%,F,T)



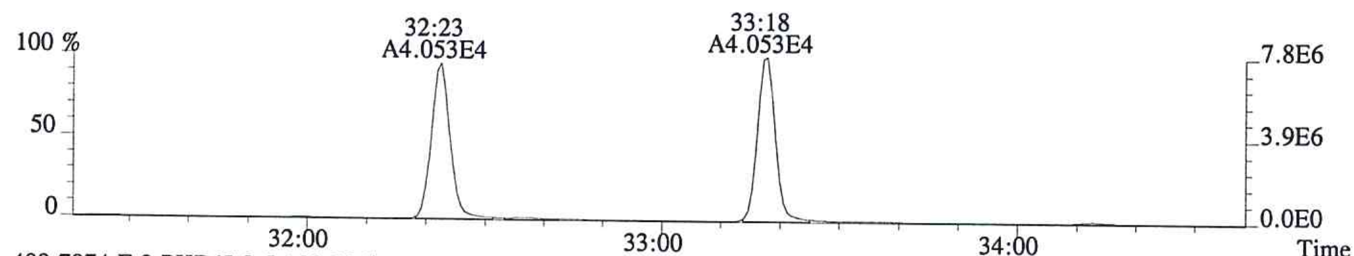
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,74376.0,1.00%,F,T)



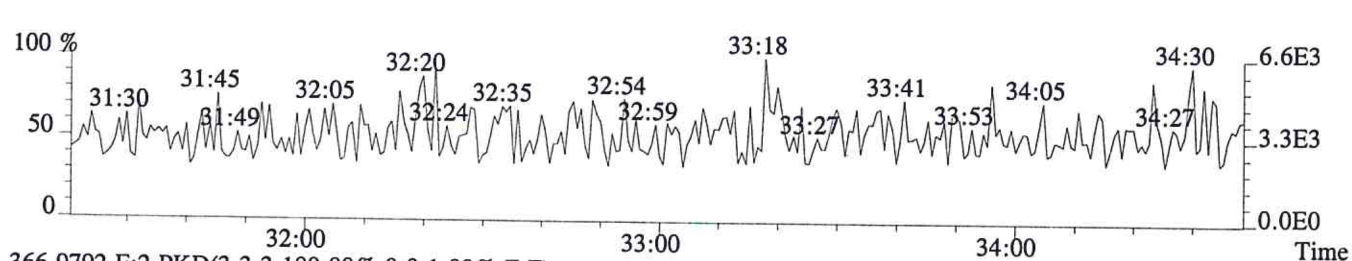
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14128.0,1.00%,F,T)



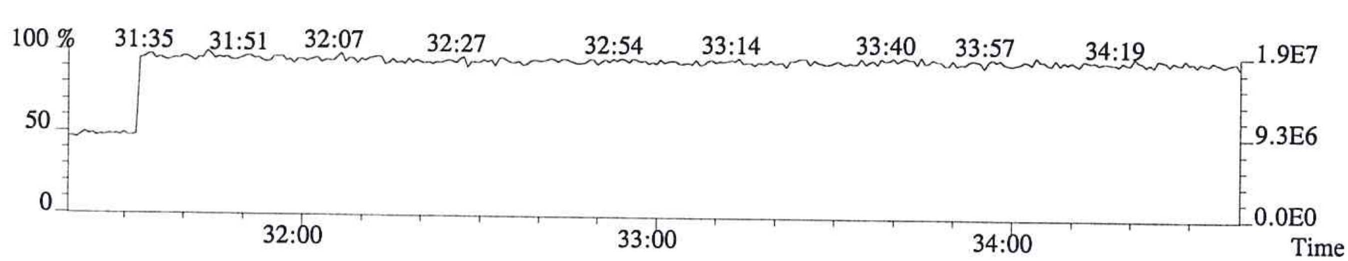
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7980.0,1.00%,F,T)



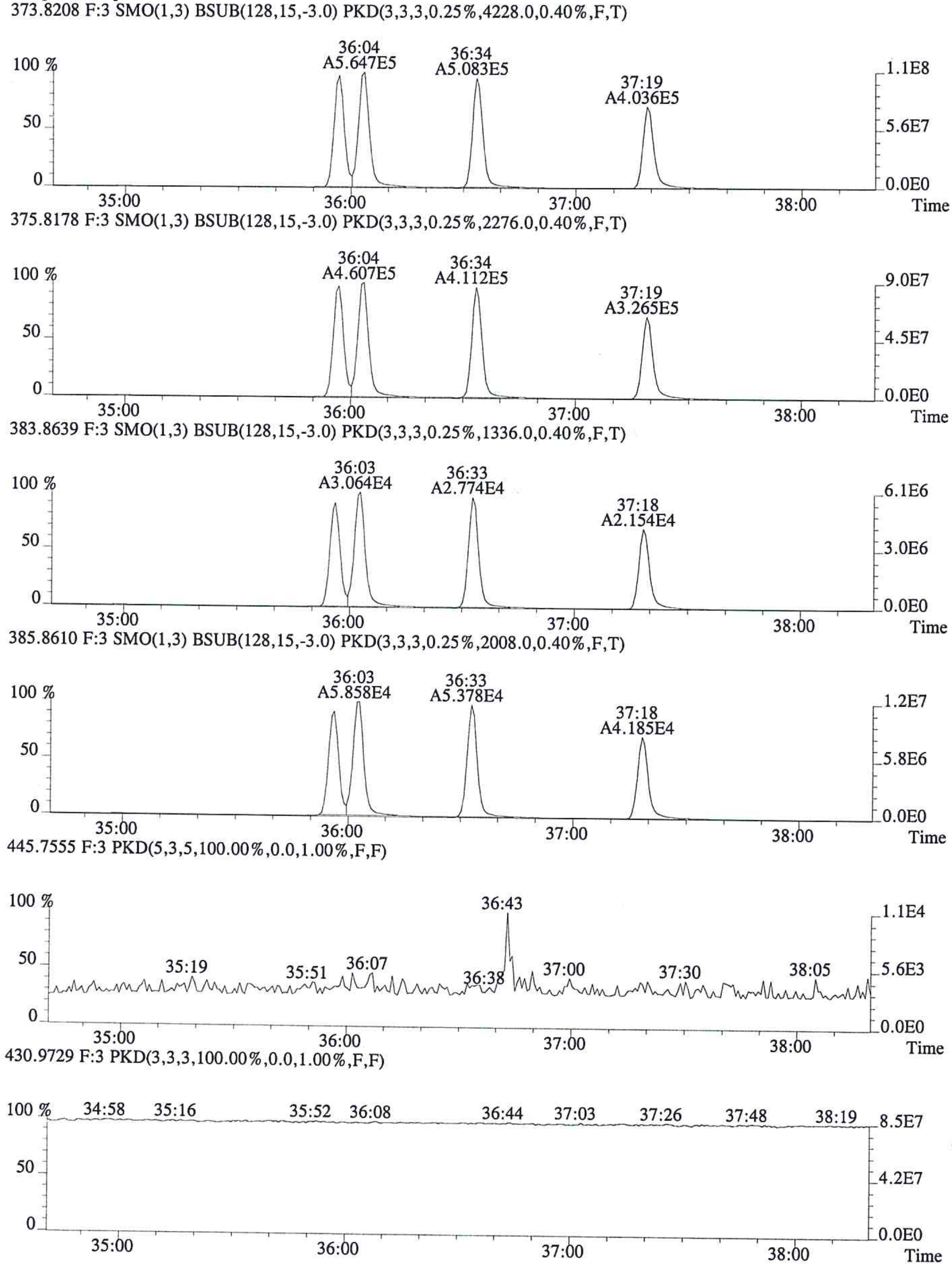
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



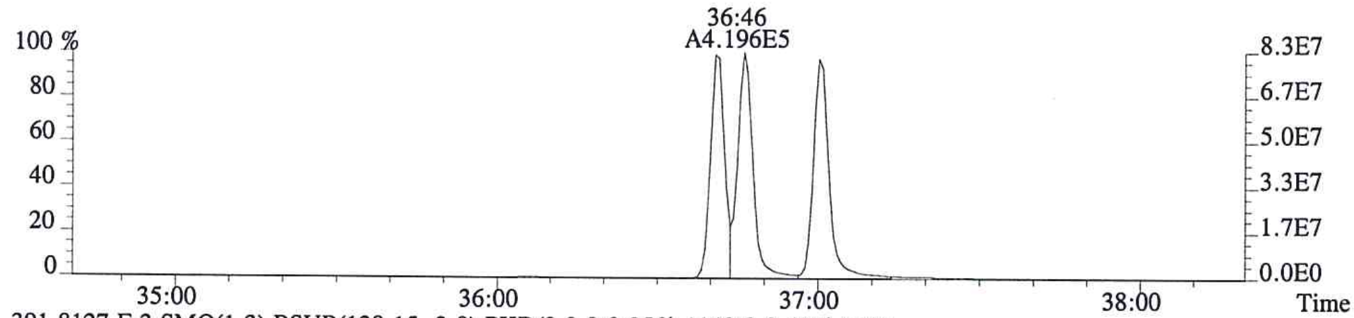
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



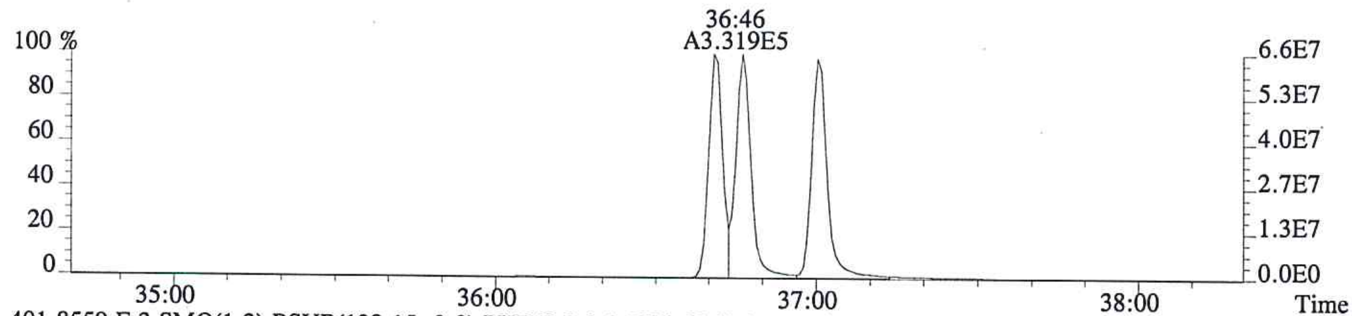
File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5



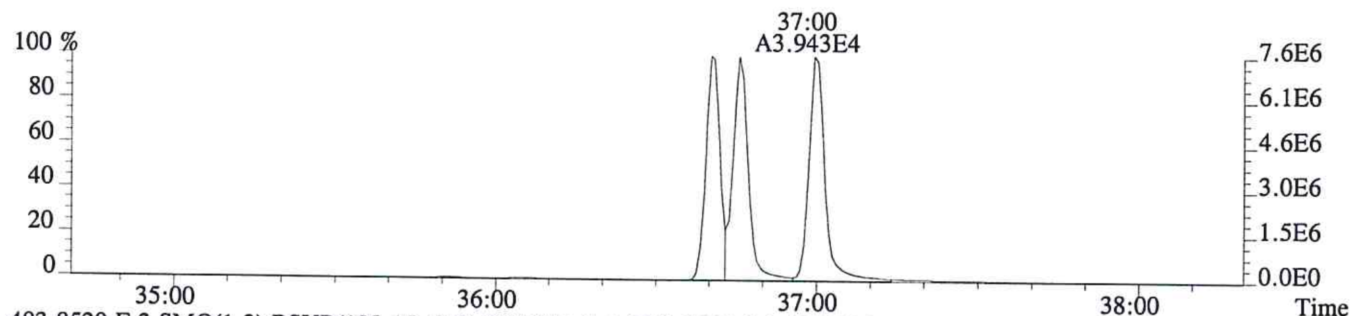
File:P603986 #1-329 Acq:25-JUN-2016 13:45:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



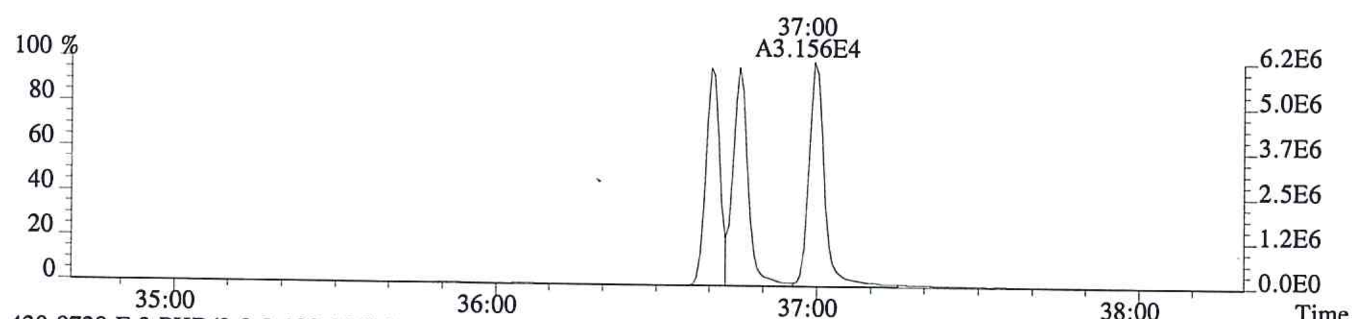
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



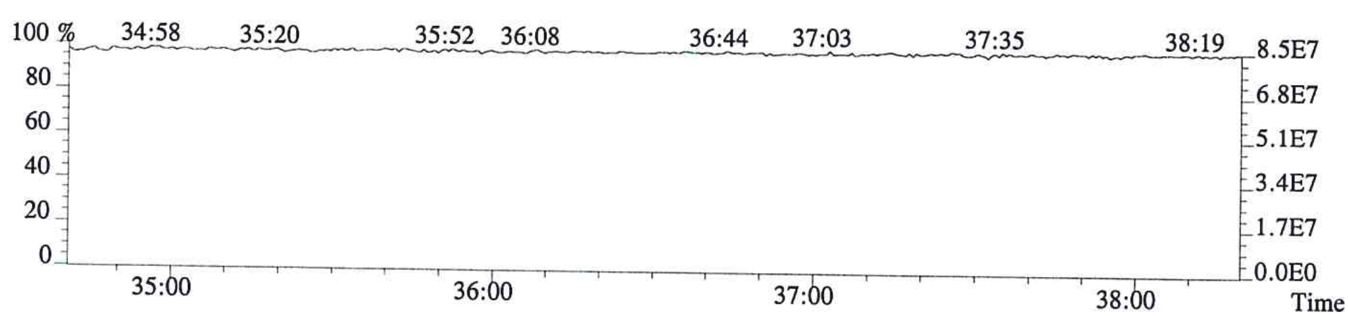
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



SPME

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08   GC Column ID: DB-5MSUI

VER Data Filename: P603988   Analysis Date: 25-JUN-16 Time: 15:21:10

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	4.8	3.9 - 6.45	-4.8
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	5.0	4.2 - 6.0	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	26.6	20.5 - 30.5	6.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

SPME

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL   Episode No.:

Contract No.:   SAS No.:

Initial Calibration Date: 06/25/16

Instrument ID: E-HRMS-08   GC Column ID: DB-5MSUI

VER Data Filename: P603988   Analysis Date: 25-JUN-16 Time: 15:21:10

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	51	41 - 60.5	2.0
13C-1,2,3,4-TCDF	M/M+2	0.80	0.65-0.89	50	35.5-70	-0.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	50	35.5-70	0.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	51	38 - 65	1.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	48	38.5 - 65	-3.0
13C-1,2,3,7,8,9-HxCDF		0.52	0.43-0.59	53	37 - 67.5	6.3
37Cl-2,3,7,8-TCDD				5	3.9 - 6.35	-0.2

(4)

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
CS3 2ND SOURCE

Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 Sample ID: CS3 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:14	4.564e+03	5.813e+03	0.79	yes	no	0.957
3	Unk	2,3,4,7,8-PeCDF	33:19	3.377e+04	2.175e+04	1.55	yes	no	0.929
11	Unk	2,3,7,8-TCDD	29:00	3.506e+03	4.480e+03	0.78	yes	no	1.048
18	IS	13C-2,3,7,8-TCDF	28:13	4.824e+04	6.074e+04	0.79	yes	no	1.283
19	IS	13C-1,2,3,7,8-PeCDF	32:23	7.291e+04	4.564e+04	1.60	yes	no	1.381
20	IS	13C-2,3,4,7,8-PeCDF	33:18	6.894e+04	4.348e+04	1.59	yes	no	1.371
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	2.364e+04	4.591e+04	0.52	yes	no	0.875
26	IS	13C-1,2,3,4-TCDF	26:58	4.958e+04	6.170e+04	0.80	yes	yes	1.324
27	IS	13C-2,3,7,8-TCDD	28:58	3.515e+04	4.490e+04	0.78	yes	no	0.929
33	RS/RT	13C-1,2,3,4-TCDD	28:23	3.742e+04	4.711e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	4.269e+04	3.208e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:00	7.970e+03				no	0.945

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL

Signal/Noise Height Ratio Summary

CLIENT ID.
CS3 2ND SOURCE

Run #6 Filename P603988 Samp: 1 Inj: 1 Acquired: 25-JUN-16 15:21:10
Processed: 26-JUN-16 09:08:05 LAB. ID: CS3 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.14e+05	1.32e+03	6.2e+02	1.04e+06	3.51e+03	3.0e+02
3	2,3,4,7,8-PeCDF	6.56e+06	1.10e+04	6.0e+02	4.19e+06	7.55e+03	5.6e+02
11	2,3,7,8-TCDD	6.55e+05	1.31e+03	5.0e+02	8.28e+05	1.41e+03	5.9e+02
18	13C-2,3,7,8-TCDF	8.37e+06	4.79e+03	1.7e+03	1.05e+07	2.74e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.26e+06	1.14e+04	7.3e+02
20	13C-2,3,4,7,8-PeCDF	1.33e+07	1.57e+04	8.5e+02	8.28e+06	1.14e+04	7.3e+02
24	13C-1,2,3,7,8,9-HxCDF	4.54e+06	9.04e+02	5.0e+03	8.79e+06	3.13e+03	2.8e+03
26	13C-1,2,3,4-TCDF	8.22e+06	4.79e+03	1.7e+03	1.03e+07	2.74e+03	3.7e+03
27	13C-2,3,7,8-TCDD	6.41e+06	8.76e+03	7.3e+02	8.18e+06	3.96e+03	2.1e+03
33	13C-1,2,3,4-TCDD	6.95e+06	8.76e+03	7.9e+02	8.65e+06	3.96e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.12e+06	2.13e+03	3.8e+03	6.38e+06	1.43e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	1.49e+06	1.75e+03	8.5e+02			

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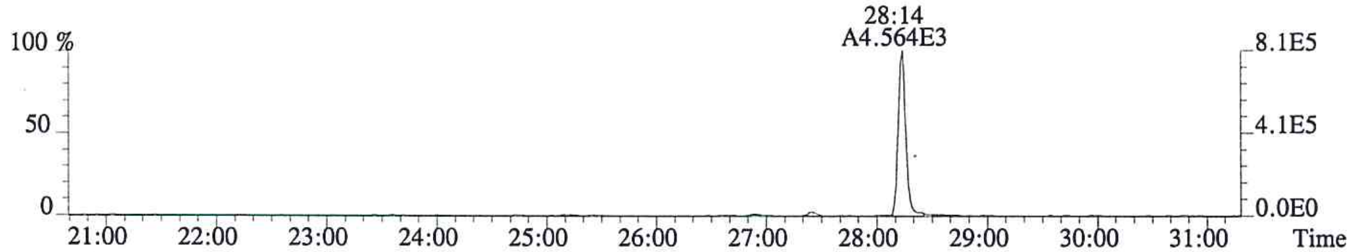
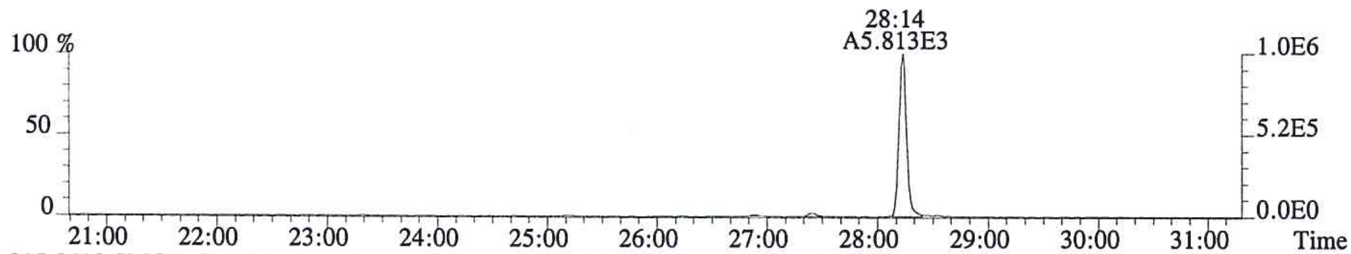
www.alsglobal.com

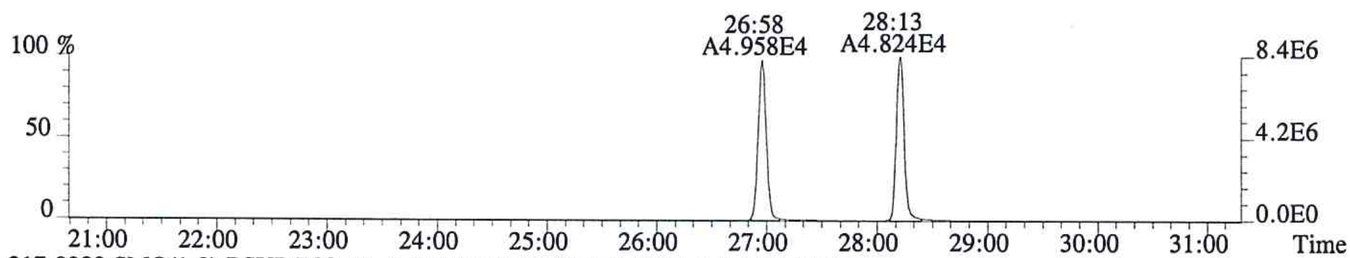
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



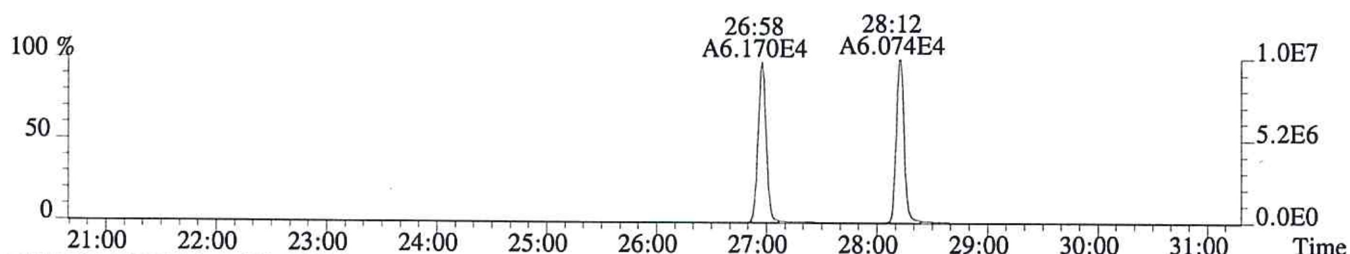
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3508.0,1.00%,F,T)



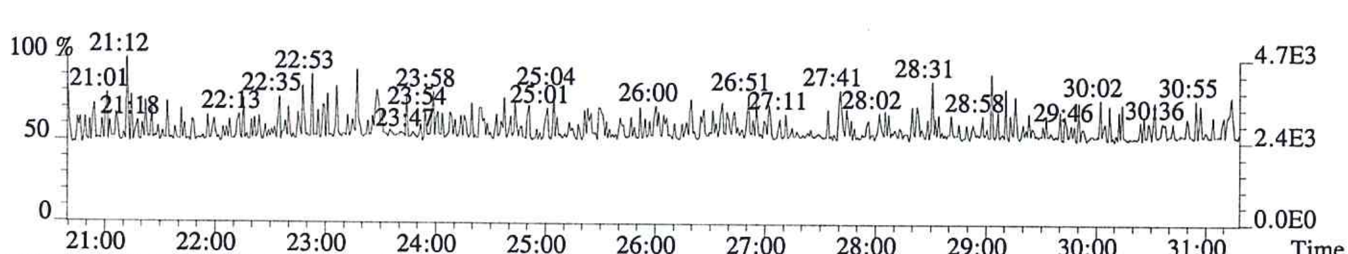
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4788.0,1.00%,F,T)



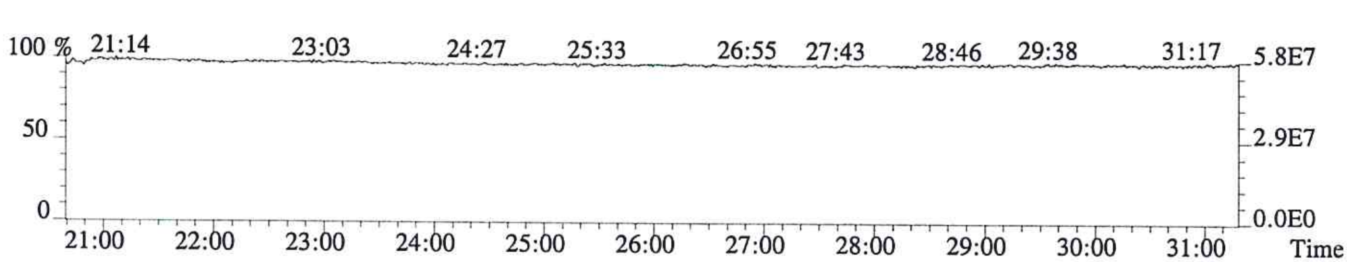
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



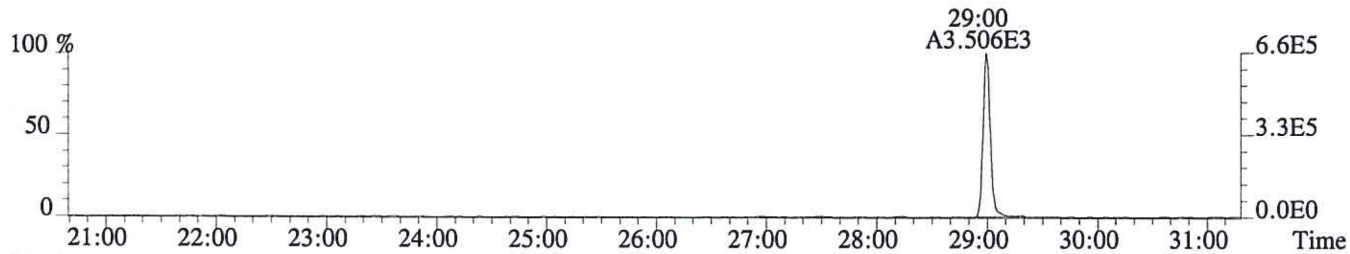
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



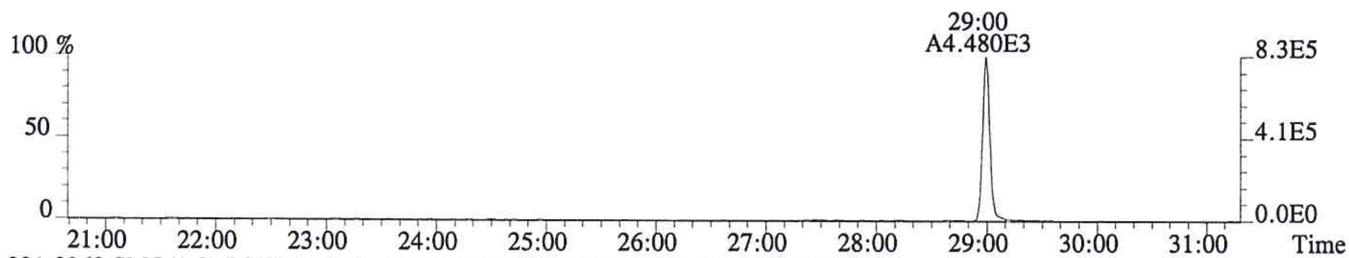
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



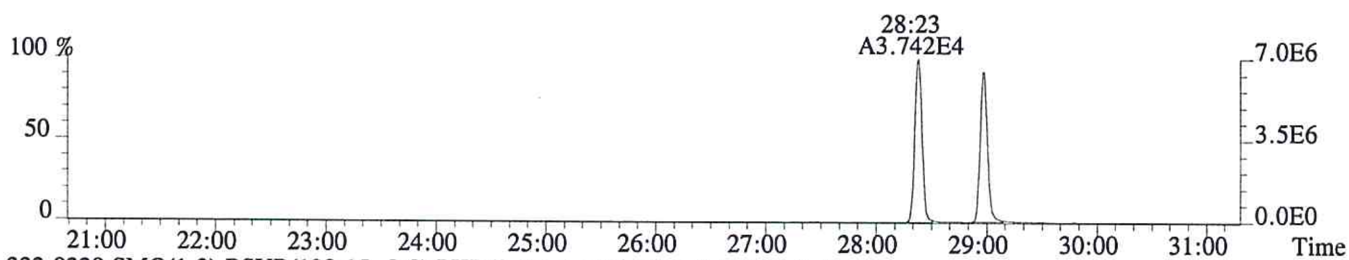
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



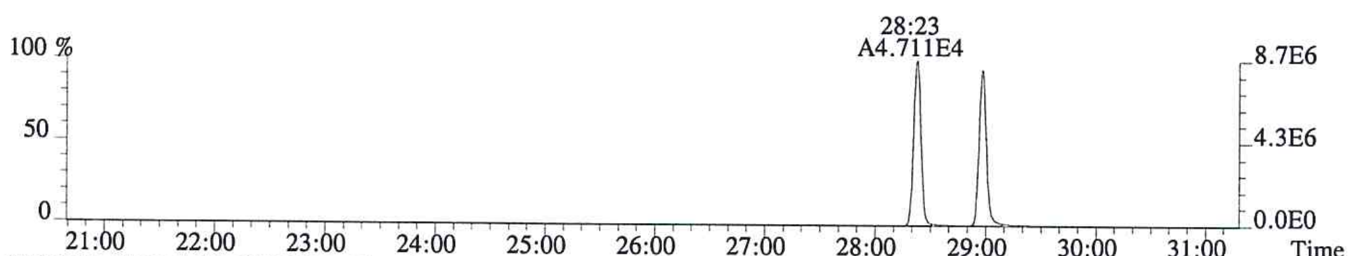
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



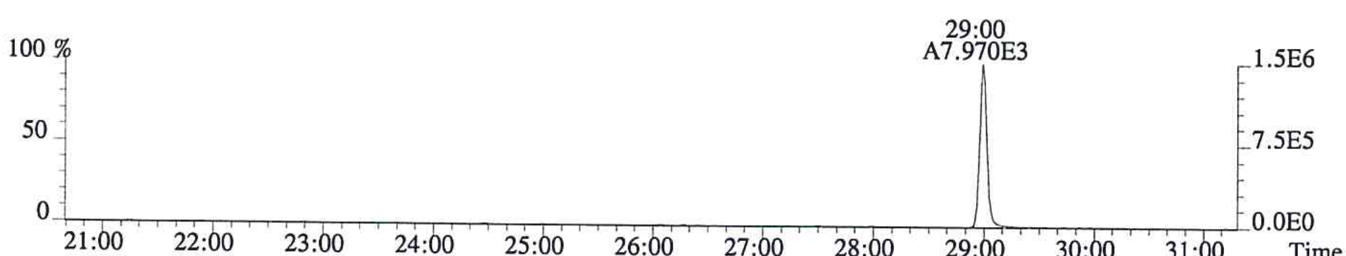
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8760.0,1.00%,F,T)



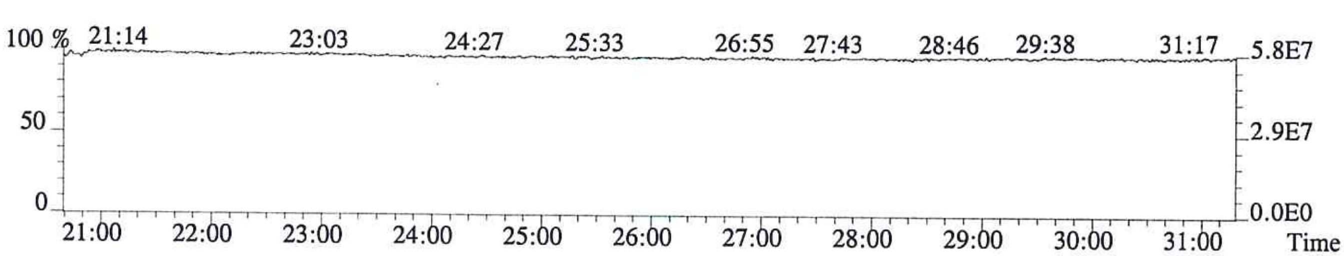
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3964.0,1.00%,F,T)



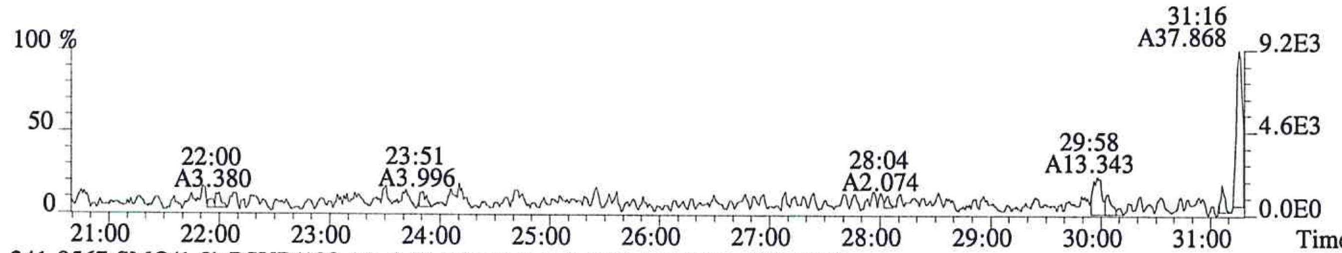
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



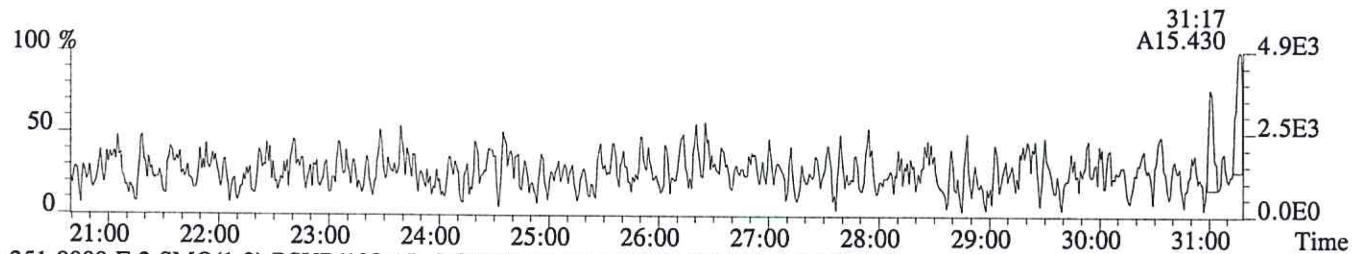
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



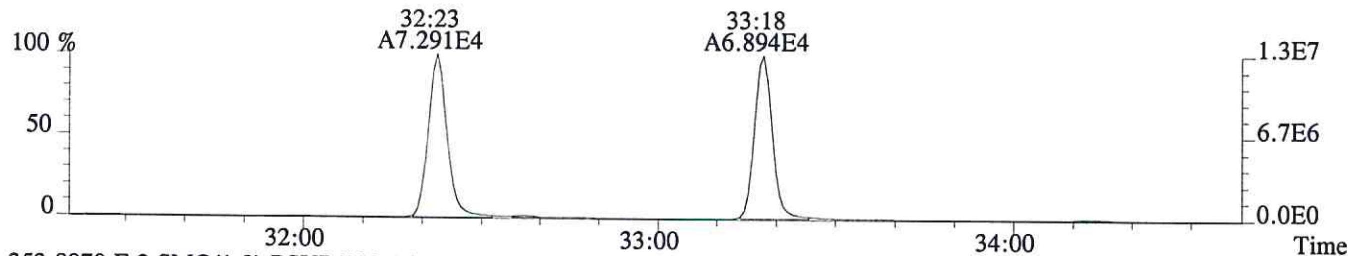
File:P603988 #1-756 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



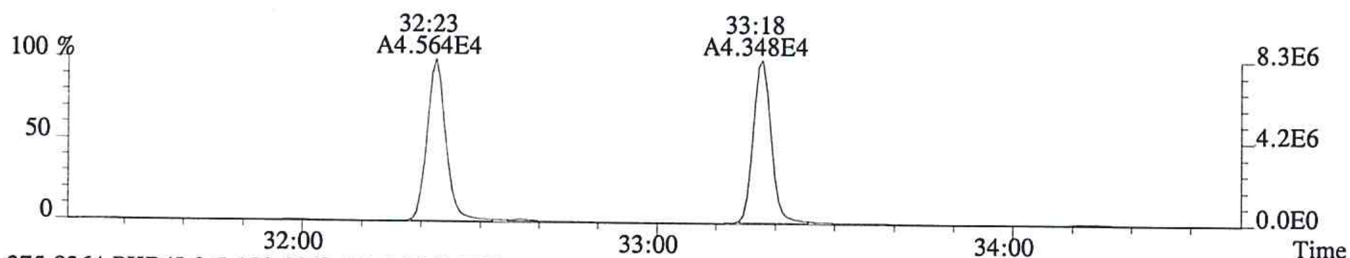
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



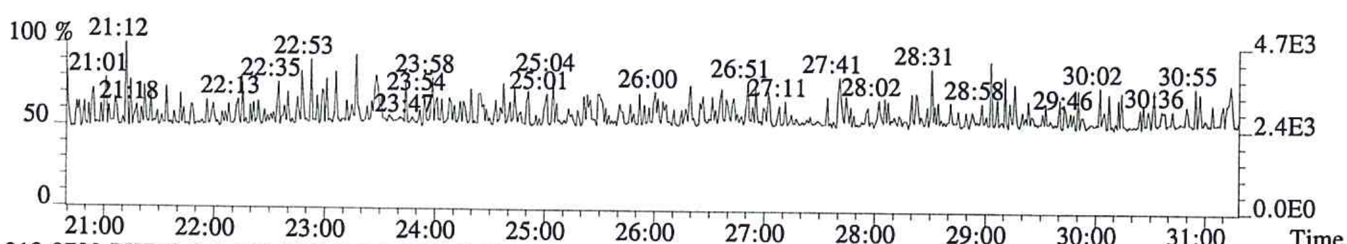
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15676.0,1.00%,F,T)



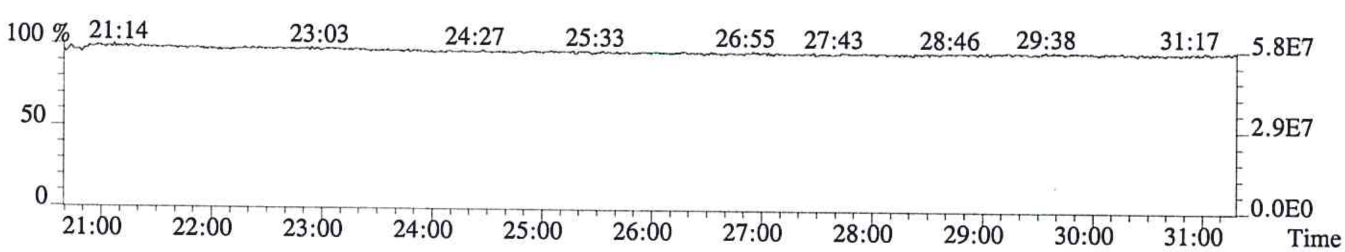
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11360.0,1.00%,F,T)



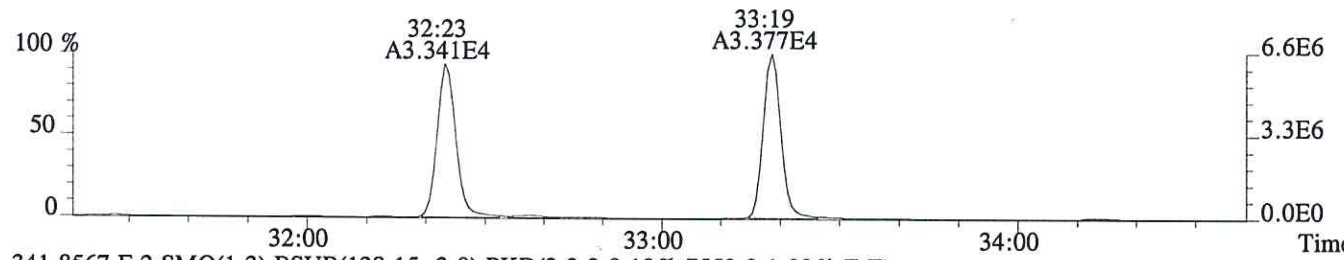
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



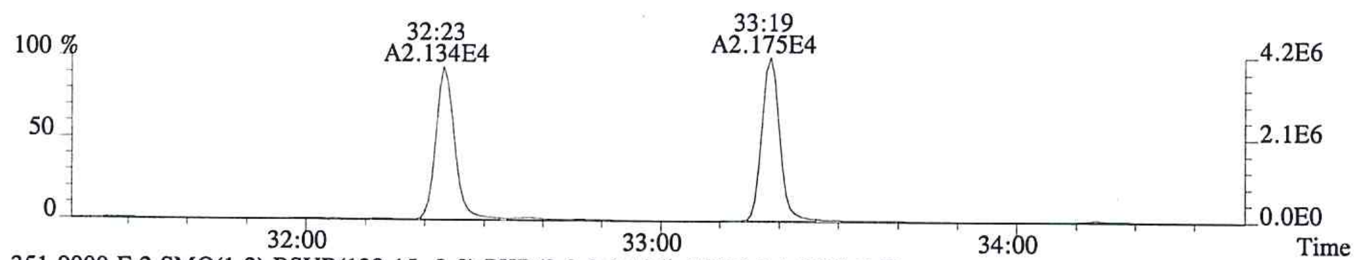
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



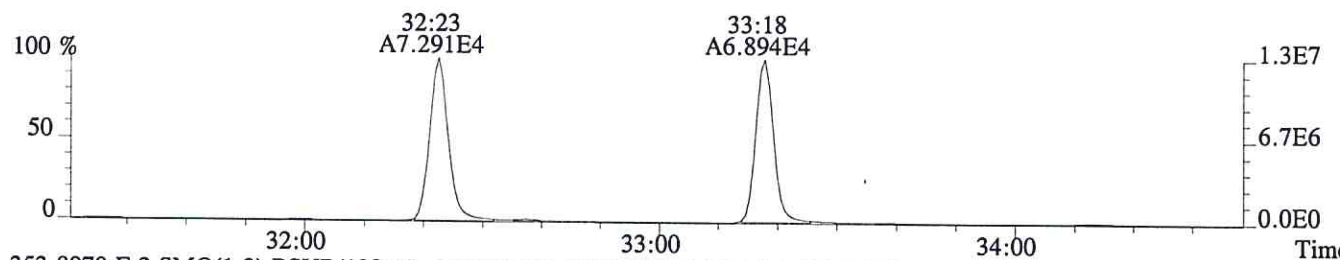
File:P603988 #1-298 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10976.0,1.00%,F,T)



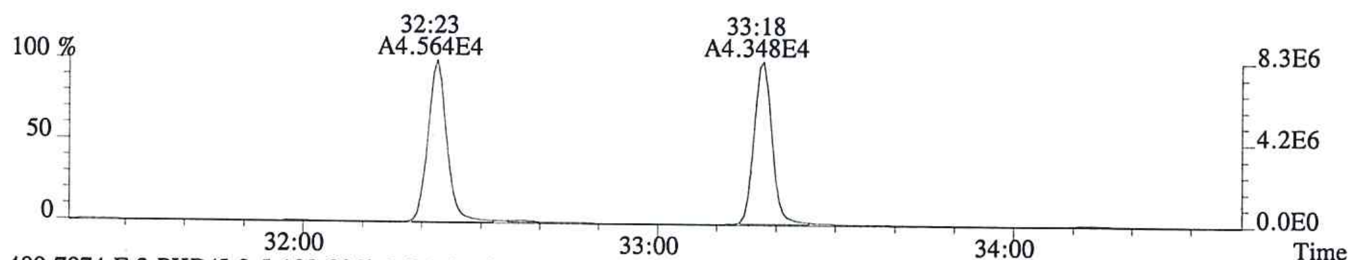
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7552.0,1.00%,F,T)



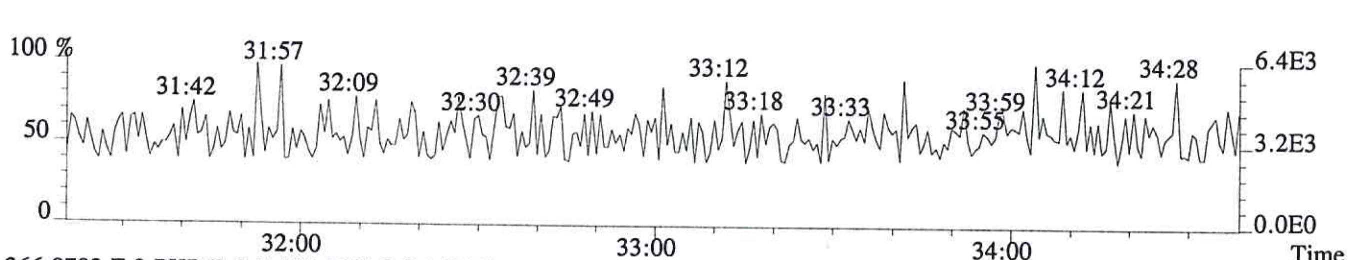
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15676.0,1.00%,F,T)



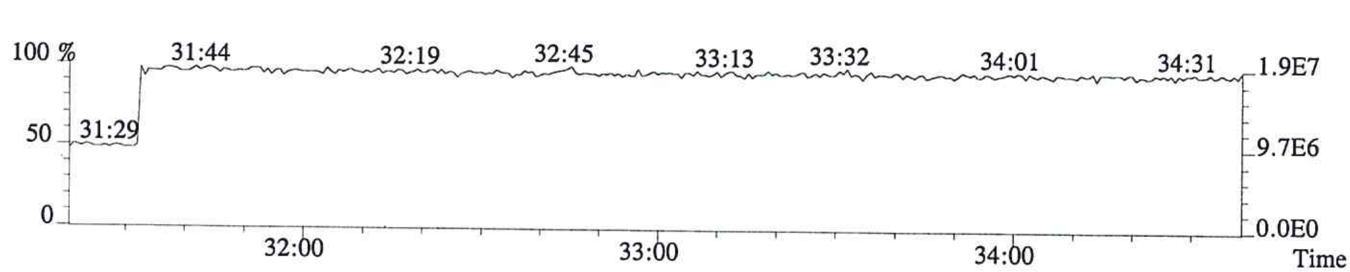
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11360.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

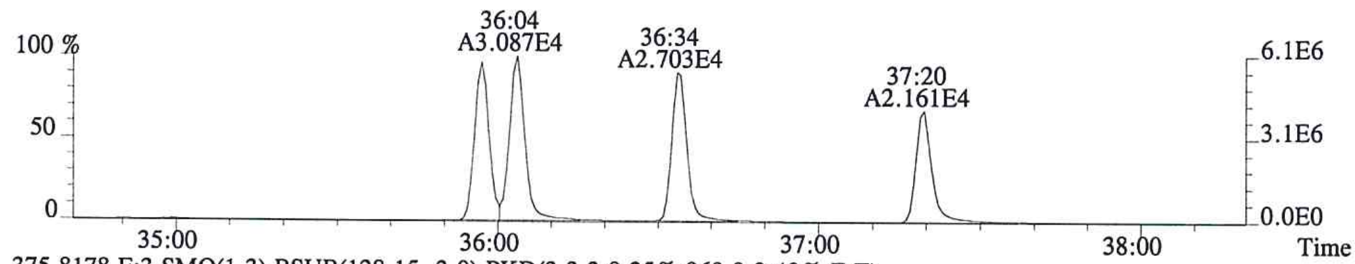


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

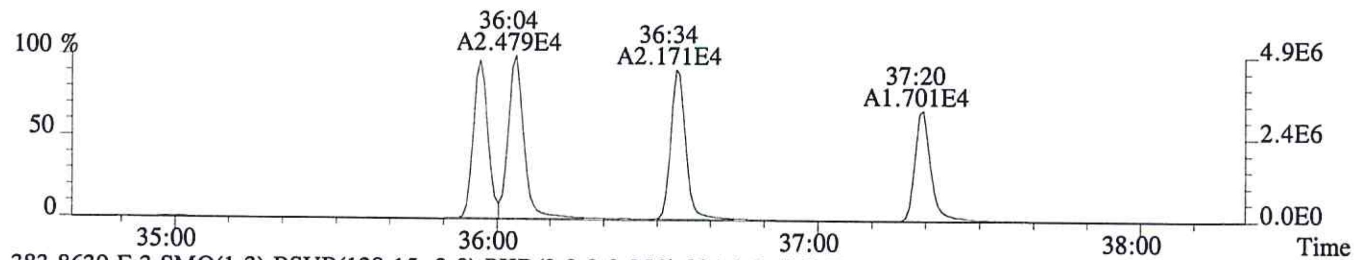


File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE

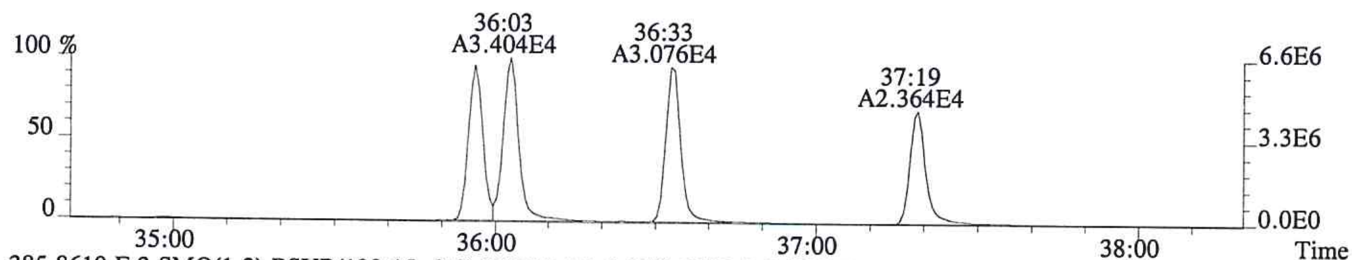
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



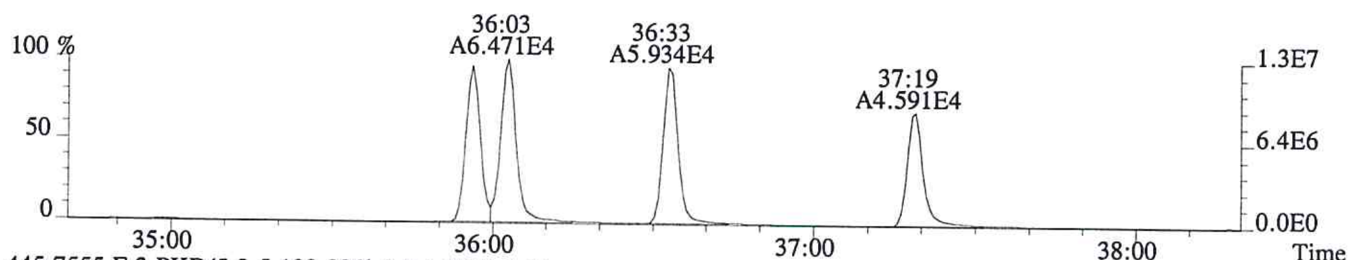
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



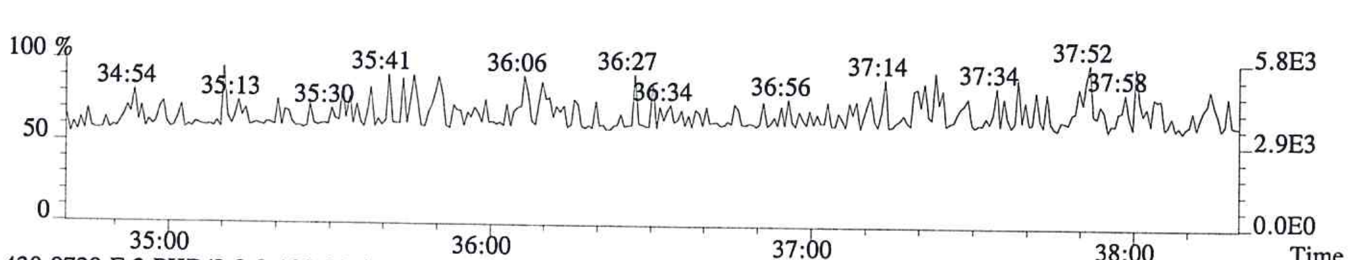
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



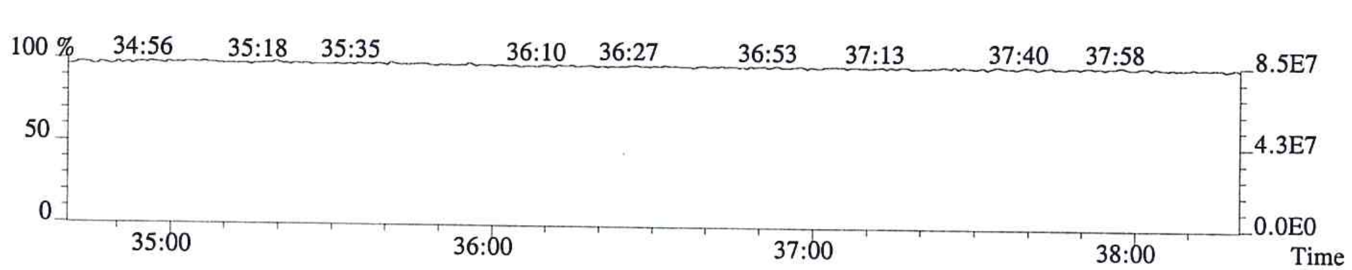
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

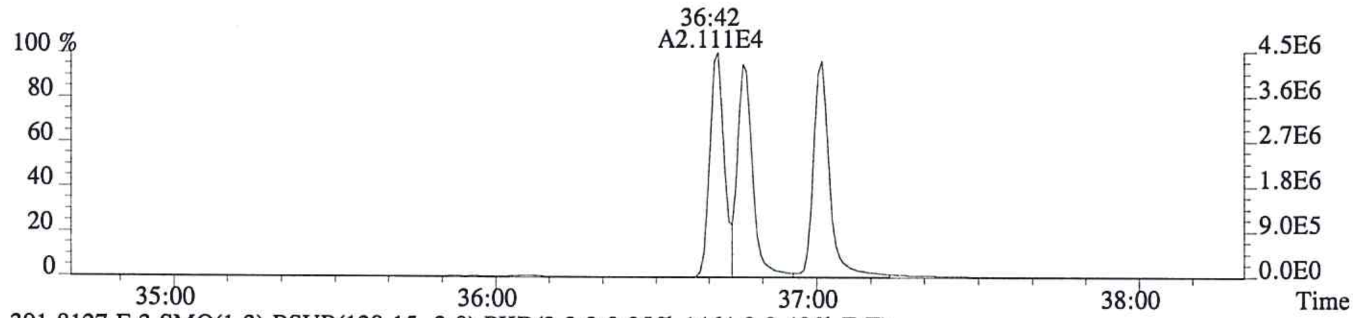


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

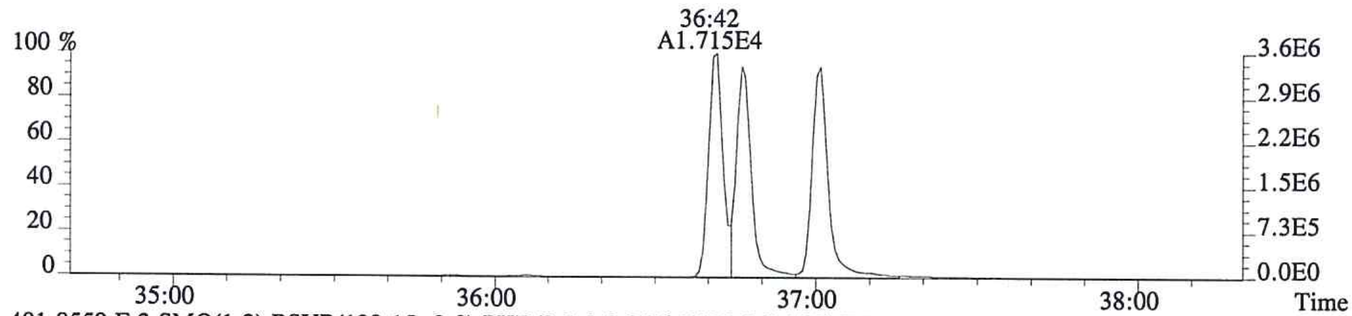


File:P603988 #1-329 Acq:25-JUN-2016 15:21:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 2ND SOURCE

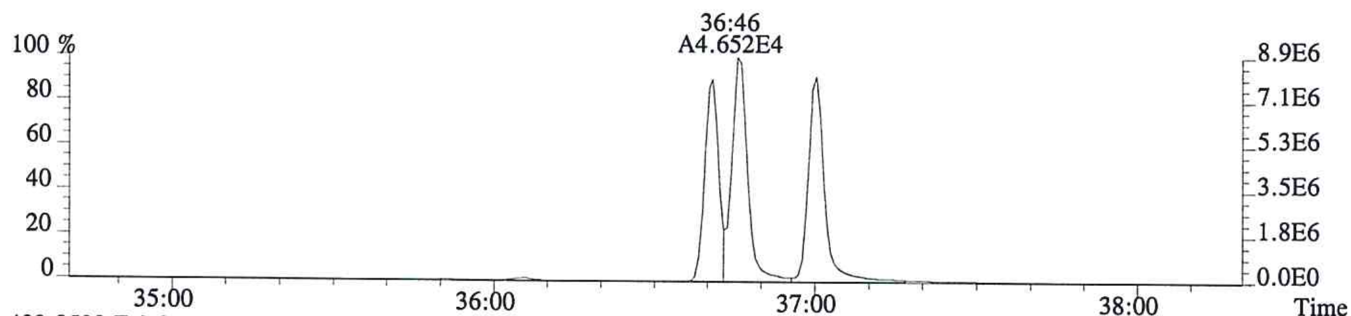
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



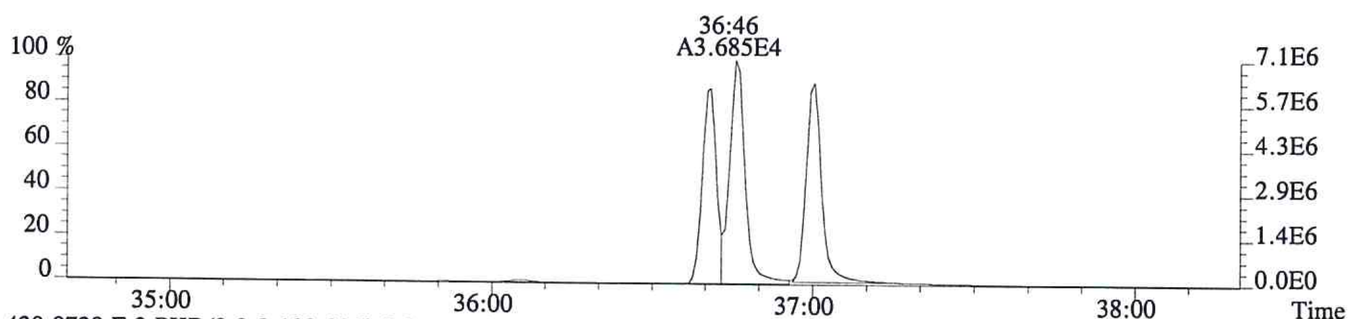
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



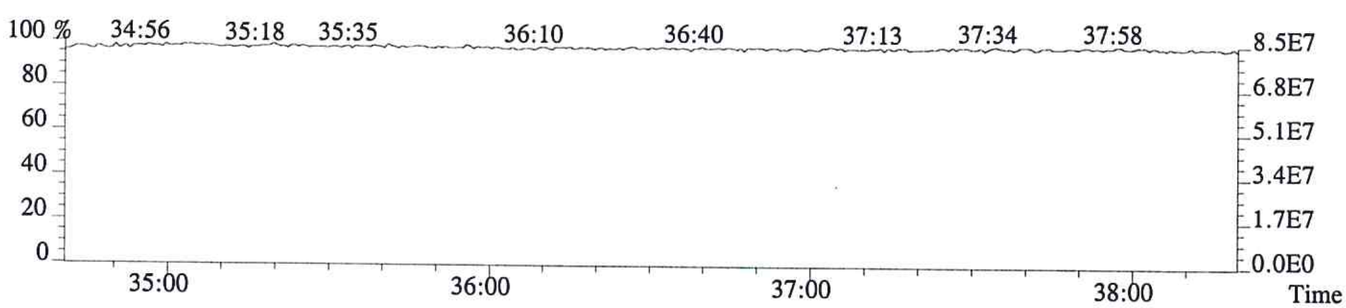
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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June 28, 2016

Analytical Report for Service Request No: K1605750

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Waste Pit / C643-0903

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory May 28, 2016
For your reference, these analyses have been assigned our service request number **K1605750.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at gregory.salata@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Gregory Salata

Gregory Salata, Ph.D.
Senior Project
Manager

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Table of Contents

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1605750
Project:	San Jacinto River Waste Pit/ C643-0903	**Date Received:**	05/28/16
Sample Matrix:	Water		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Five water samples were received for analysis at ALS Environmental on 05/28/16. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Dissolved Organic Carbon by Standard Method 5310 C:
The Relative Percent Difference (RPD) criterion for the replicate analysis in sample SW083 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

Approved by Gregory Salata

Chain of Custody

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K1605750

CHAIN OF CUSTODY - HRGC/HRMS - LABORATORY ANALYSIS REPORT FORM

ALS Environmental

10450 Stancliff Road, Suite 210, Houston, TX 77099 | 713.266.1599 | alsusa.hrms@alsglobal.com | www.alsglobal.com

DATE 5/26/16 PAGE 1 OF 1

Project Name: SAN JACINTO RIVER WASTE PIT

Project #: C643-0903

Company/Address: INTEGRAL CONSULTING INC

Phone: 360 705-3534

Report to: CRAIG HUTCHINGS

Analysis Request

SAMPLE I.D.	DATE	TIME	SAMPLE MATRIX	Number of Containers	8290	1613B	1613 TCDD only	1668 WHO	1668 Full List	TOC	DOC	TDS	TSS						REMARKS / SAMPLE LOCATION TAG #
SW083	5/24/16	1410	WATER	1							X								0464
SW062	5/24/16	1953	WATER	4						X	X	X	X						0425, 0424, 0423, 0422
SW059	5/25/16	1525	WATER	4						X	X	X	X						0419, 0418, 0417, 0416
SW068	5/25/16	1950	WATER	4						X	X	X	X						0437, 0436, 0434, 0435
SW071	5/26/16	1727	WATER	4						X	X	X	X						0440, 0441, 0442, 0443

RELINQUISHED BY:	RECEIVED BY:	TURNAROUND REQUIREMENTS	DELIVERABLES	INVOICE INFORMATION:	SAMPLE RECEIPT
Signature: [signature]	Signature: [signature]	Dioxin Rush..............5 days	___ I. Analytical Report	P.O. #	Opened by:
Printed Name: Lon Snyder...	Printed Name: K Smith	Dioxin Rush............10 days	___ II. Analytical Report + QC	Bill to:	Inspected by:
Firm: INTEGRAL	Firm: ALS	Dioxin STD..............15 days	✓ IV. Data Validation Report (includes all raw data)		Date:
Date/Time: 5/27/ 17:30	Date/Time: 5/28/16 0935	Contact lab for available TAT on PCBs			Time:

RELINQUISHED BY:	RECEIVED BY:	Comments/Special Instructions:
Signature:	Signature:	
Printed Name:	Printed Name:	Sampler's Signature [signature]
Firm:	Firm:	
Date/Time:	Date/Time:	

DISTRIBUTION: WHITE - Laboratory Copy; YELLOW - Client Copy

ALS

PC Greg

Cooler Receipt and Preservation Form

Client Integral Service Request K16 05752

Received: 5/28/16 Opened: 5/28/16 By: PD Unloaded: 5/28/16 By: PD

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other*______ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, Back (written on tape)

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
5.1	5.1	2.3	2.3	0	308		783228790516	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* ______
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*______

SHORT HOLD TIME

*Page*____ *of*____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Integral Consulting, Incorporated		**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903		**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water		**Date Received:**	05/28/16
Analysis Method:	SM 2540 C		**Units:**	mg/L
Prep Method:	None		**Basis:**	NA

Solids, Total Dissolved

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
SW062	K1605750-002	**115**	10	-	1	05/31/16 18:11	
SW059	K1605750-003	**136**	10	-	1	06/01/16 18:16	
SW068	K1605750-004	**145**	10	-	1	06/01/16 18:16	
SW071	K1605750-005	**506**	10	-	1	06/01/16 18:16	
Method Blank	K1605750-MB1	ND U	5.0	-	1	05/31/16 18:11	
Method Blank	K1605750-MB2	ND U	5.0	-	1	05/31/16 18:11	
Method Blank	K1605750-MB3	ND U	5.0	-	1	06/01/16 18:16	
Method Blank	K1605750-MB4	ND U	5.0	-	1	06/01/16 18:16	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Solids, Total Dissolved

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1605604-001DUP	13	-	1020	1020	1020	<1	10	06/01/16
Batch QC	K1605615-001DUP	20	-	2780	2810	2790	1	10	06/01/16
Batch QC	K1605624-002DUP	10	-	217	214	216	1	10	05/31/16
Batch QC	K1605717-003DUP	10	-	175	184	180	5	10	05/31/16

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed 6/16/2016 10:47:10 AM   Superset Reference:16-0000378591 rev 00

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Analyzed:**	05/31/16
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	498903

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1605750-LCS1	702	714	98	85-115

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Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Analyzed:**	06/01/16
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Dissolved

Analysis Method:	SM 2540 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	499094

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1605750-LCS2	710	714	99	85-115

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water	**Date Received:**	05/28/16
Analysis Method:	SM 2540 D	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
SW062	K1605750-002	**10.0**	5.0	-	1	05/31/16 15:14	
SW059	K1605750-003	**13.0**	5.0	-	1	05/31/16 15:14	
SW068	K1605750-004	**14.0**	5.0	-	1	05/31/16 15:14	
SW071	K1605750-005	**38.5**	5.0	-	1	05/31/16 15:14	
Method Blank	K1605750-MB1	ND U	5.0	-	1	05/31/16 15:14	
Method Blank	K1605750-MB2	ND U	5.0	-	1	05/31/16 15:14	

Printed 6/16/2016 10:47:10 AM Superset Reference:16-0000378591 rev 00

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Analysis Method:	SM 2540 D	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Solids, Total Suspended (TSS)

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1605687-001DUP	5.0	-	14.0	13.0	13.5	7	10	05/31/16
Batch QC	K1605717-003DUP	5.0	-	52.5	53.5	53.0	2	10	05/31/16

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Analyzed:**	05/31/16
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Solids, Total Suspended (TSS)

Analysis Method:	SM 2540 D	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	498899

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1605750-LCS1	138	141	98	85-115

Printed 6/16/2016 10:47:10 AM

Superset Reference:16-0000378591 rev 00

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water	**Date Received:**	05/28/16
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Dissolved Organic (DOC)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
SW083	K1605750-001	**0.53**	0.50	0.07	1	06/11/16 16:03	
SW062	K1605750-002	**9.89**	0.50	0.07	1	06/11/16 16:03	
SW059	K1605750-003	**9.50**	0.50	0.07	1	06/11/16 16:03	
SW068	K1605750-004	**9.55**	0.50	0.07	1	06/11/16 16:03	
SW071	K1605750-005	**14.1**	1.0	0.2	2	06/11/16 16:03	
Method Blank	K1605750-MB1	ND U	0.50	0.07	1	06/11/16 16:03	

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water	**Date Received:**	05/28/16
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Dissolved Organic (DOC)

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
SW083	K1605750-001DUP	0.50	0.07	0.53	0.34 J	0.437	44 *	10	06/11/16
SW062	K1605750-002DUP	0.50	0.07	9.89	9.64	9.77	2	10	06/11/16
SW059	K1605750-003DUP	0.50	0.07	9.50	9.51	9.51	<1	10	06/11/16
SW068	K1605750-004DUP	0.50	0.07	9.55	9.60	9.57	<1	10	06/11/16
SW071	K1605750-005DUP	1.0	0.2	14.1	14.0	14.0	1	10	06/11/16

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16
Sample Matrix:	Water	**Date Received:**	05/28/16
		Date Analyzed:	06/11/16
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Dissolved Organic (DOC)

Sample Name:	SW083	**Units:**	mg/L
Lab Code:	K1605750-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1605750-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Dissolved Organic (DOC)	0.53	25.9	25.0	101	83-117

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Analyzed:**	06/11/16
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Dissolved Organic (DOC)

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	500529

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1605750-LCS1	24.1	24.0	100	83-117

Client: Integral Consulting, Incorporated **Service Request:** K1605750
Project: San Jacinto River Waste Pit/C643-0903

Continuing Calibration Verification (CCV) Summary

Carbon, Dissolved Organic (DOC)

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	500529	KQ1606462-18	06/11/16 16:03	25.0	23.5	94	90-110
CCV2	500529	KQ1606462-19	06/11/16 16:03	25.0	23.6	94	90-110
CCV3	500529	KQ1606462-20	06/11/16 16:03	25.0	23.4	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Integral Consulting, Incorporated **Service Request:** K1605750
Project: San Jacinto River Waste Pit/C643-0903

Continuing Calibration Blank (CCB) Summary

Carbon, Dissolved Organic (DOC)

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	500529	KQ1606462-21	06/11/16 16:03	0.50	0.07	ND	U
CCB2	500529	KQ1606462-22	06/11/16 16:03	0.50	0.07	ND	U
CCB3	500529	KQ1606462-23	06/11/16 16:03	0.50	0.07	ND	U

Analytical Report

Client:	Integral Consulting, Incorporated		**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903		**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water		**Date Received:**	05/28/16
Analysis Method:	SM 5310 C		**Units:**	mg/L
Prep Method:	None		**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
SW062	K1605750-002	**10.1**	0.50	0.07	1	06/13/16 16:00	
SW059	K1605750-003	**10.3**	0.50	0.07	1	06/13/16 16:00	
SW068	K1605750-004	**10.1**	0.50	0.07	1	06/13/16 16:00	
SW071	K1605750-005	**7.48**	0.50	0.07	1	06/13/16 16:00	
Method Blank	K1605750-MB1	ND U	0.50	0.07	1	06/13/16 16:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16 - 05/26/16
Sample Matrix:	Water	**Date Received:**	05/28/16
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
SW062	K1605750-002DUP	0.50	0.07	10.1	9.95	10.0	1	10	06/13/16
SW059	K1605750-003DUP	0.50	0.07	10.3	9.72	10.0	6	10	06/13/16
SW068	K1605750-004DUP	0.50	0.07	10.1	9.82	9.95	3	10	06/13/16
SW071	K1605750-005DUP	0.50	0.07	7.48	7.26	7.37	3	10	06/13/16

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed 6/16/2016 10:48:00 AM   Superset Reference:16-0000378591 rev 00

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Collected:**	05/24/16
Sample Matrix:	Water	**Date Received:**	05/28/16
		Date Analyzed:	06/13/16
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	SW062	**Units:**	mg/L
Lab Code:	K1605750-002	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1605750-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	10.1	36.4	25.0	105	83-117

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Integral Consulting, Incorporated	**Service Request:**	K1605750
Project:	San Jacinto River Waste Pit/C643-0903	**Date Analyzed:**	06/13/16
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	500687

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1605750-LCS1	24.2	24.0	101	83-117

Client: Integral Consulting, Incorporated **Service Request:** K1605750
Project: San Jacinto River Waste Pit/C643-0903

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	500687	KQ1606456-03	06/13/16 16:00	25.0	24.1	96	90-110
CCV2	500687	KQ1606456-04	06/13/16 16:00	25.0	24.1	96	90-110
CCV3	500687	KQ1606456-05	06/13/16 16:00	25.0	23.7	95	90-110
CCV4	500687	KQ1606456-06	06/13/16 16:00	25.0	23.6	94	90-110

Client: Integral Consulting, Incorporated **Service Request:** K1605750
Project: San Jacinto River Waste Pit/C643-0903

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	500687	KQ1606456-07	06/13/16 16:00	0.50	0.07	ND	U
CCB2	500687	KQ1606456-08	06/13/16 16:00	0.50	0.07	ND	U
CCB3	500687	KQ1606456-09	06/13/16 16:00	0.50	0.07	ND	U
CCB4	500687	KQ1606456-10	06/13/16 16:00	0.50	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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4

Work Request # Original (K160) 5586, 5624, 5628, 5630, 5634, 5693, 5717, 5750

Tier: II III I I IV II V IV

Date Analyzed: 5/31/16

Analyst: MT

Run # 498903

Analysis: Sm 2540 C/TDS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

K160 5693 Rush

K160 5586, 5624, 5628, 5630, 5634, 5693 Late

Final Approved by: [signature] Date: 06/13/16

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** MTAYLOR **Analysis Lot:** 498903 **Method/Testcode:** SM 2540 C/TDS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605586-002	Solids, Total Dissolved	N/A		Water	403.00 mg/L	100 mL	403 mg/L	1		10			5/31/16 18:11	N	II
K1605624-001	Solids, Total Dissolved	N/A		Ground Water	193.00 mg/L	100 mL	193 mg/L	1		10			5/31/16 18:11	N	III
K1605624-002	Solids, Total Dissolved	N/A		Ground Water	217.00 mg/L	100 mL	217 mg/L	1		10			5/31/16 18:11	Y	III
K1605624-003	Solids, Total Dissolved	N/A		Ground Water	0.50 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 18:11	N	III
K1605624-004	Solids, Total Dissolved	N/A		Ground Water	207.00 mg/L	100 mL	207 mg/L	1		10			5/31/16 18:11	N	III
K1605624-005	Solids, Total Dissolved	N/A		Ground Water	561.00 mg/L	100 mL	561 mg/L	1		10			5/31/16 18:11	N	III
K1605624-006	Solids, Total Dissolved	N/A		Ground Water	184.00 mg/L	100 mL	184 mg/L	1		10			5/31/16 18:11	N	III
K1605628-002	Solids, Total Dissolved	N/A		Water	173.00 mg/L	100 mL	173 mg/L	1		10			5/31/16 18:11	N	I
K1605630-001	Solids, Total Dissolved	N/A		Water	181.00 mg/L	100 mL	181 mg/L	1		10			5/31/16 18:11	N	I
K1605630-002	Solids, Total Dissolved	N/A		Water	151.00 mg/L	100 mL	151 mg/L	1		10			5/31/16 18:11	N	I
K1605634-001	Solids, Total Dissolved	N/A		Water	2881.30 mg/L	75 mL	2880 mg/L	1		13			5/31/16 18:11	N	IV
K1605634-002	Solids, Total Dissolved	N/A		Water	165.00 mg/L	100 mL	165 mg/L	1		10			5/31/16 18:11	N	IV
K1605634-003	Solids, Total Dissolved	N/A		Water	2556.00 mg/L	75 mL	2560 mg/L	1		13			5/31/16 18:11	N	IV
K1605693-001	Solids, Total Dissolved	N/A		Water	7.00 mg/L	200 mL	7.0 mg/L	1		5.0			5/31/16 18:11	N	II
K1605717-001	Solids, Total Dissolved	N/A		Water	297.00 mg/L	100 mL	297 mg/L	1		10			5/31/16 18:11	N	V
K1605717-002	Solids, Total Dissolved	N/A		Water	102.00 mg/L	100 mL	102 mg/L	1		10			5/31/16 18:11	N	V
K1605717-003	Solids, Total Dissolved	N/A		Water	175.00 mg/L	100 mL	175 mg/L	1		10			5/31/16 18:11	Y	V
K1605717-004	Solids, Total Dissolved	N/A		Water	117.00 mg/L	100 mL	117 mg/L	1		10			5/31/16 18:11	N	V
K1605717-005	Solids, Total Dissolved	N/A		Water	125.00 mg/L	100 mL	125 mg/L	1		10			5/31/16 18:11	N	V
K1605750-002	Solids, Total Dissolved	N/A		Water	115.00 mg/L	100 mL	115 mg/L	1		10			5/31/16 18:11	N	IV
KQ1606351-01	Solids, Total Dissolved	MB		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 18:11	N	II
KQ1606351-02	Solids, Total Dissolved	MB		Water	-1.00 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 18:11	N	II
KQ1606351-03	Solids, Total Dissolved	LCS		Water	702.00 mg/L	50 mL	702 mg/L	1		20	98		5/31/16 18:11	N	II
KQ1606351-04	Solids, Total Dissolved	DUP	K1605624-002	Ground Water	214.00 mg/L	100 mL	214 mg/L	1		10		1	5/31/16 18:11	N	III
KQ1606351-05	Solids, Total Dissolved	DUP	K1605717-003	Water	184.00 mg/L	100 mL	184 mg/L	1		10		5	5/31/16 18:11	N	V

06/13/16

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

498903

Work Order #.: K1605586,5624,5628,5630,5634,5693,5717,5750 Method: EPA SM 2540 C

Analysis: Total Dissolved Solids

Sample #	Crucible #	Conductivity	Sample Volume (ml)	Wt, Cru. + Dry sample (1) (g)	Wt, Cru. + Dry sample (2) (g)	Wt, Cru. + Dry sample (3) (g)	Wt. Crucible (g)	Wt. Dry Sample (g)	TDS (mg/L)	TDS (mg/L) reported
MB	C16		200	85.9167	85.9167		85.9167	0.0000	0	<5
MB	28Y		200	76.8470	76.8470		76.8472	-0.0002	-1	<5
LCS	A53		50	100.5948	100.5947		100.5597	0.0351	702	702.00
K1605586-002	A12	710	100	85.9527	85.9523		85.9124	0.0403	403	403.00
K1605624-001	A46	409	100	86.5897	86.5895		86.5704	0.0193	193	193.00
K1605624-002	A15	461	100	95.0260	95.0257		95.0043	0.0217	217	217.00
K1605624-003	E3	2	200	78.6840	778.6840		78.6839	0.0001	1	<5
K1605624-004	A17	465	100	84.2828	84.2825		84.2621	0.0207	207	207.00
K1605624-005	A22	861	100	81.2585	81.2582		81.2024	0.0561	561	561.00
K1605624-006	24	390	100	70.3416	70.3415		70.3232	0.0184	184	184.00
K1605628-002	A8	274	100	99.2188	99.2188		99.2015	0.0173	173	173.00
K1605630-001	LL	310	100	81.0143	81.0142		80.9962	0.0181	181	181.00
K1605630-002	[25]	218	100	77.9649	77.9648		77.9498	0.0151	151	151.00
K1605634-001	NC2	2922	75	86.2573	86.2571		86.0412	0.2161	2881	2881.30
K1605634-002	5O	248	100	68.6196	68.6192		68.6031	0.0165	165	165.00
K1605634-003	T4	2632	75	67.9027	67.9024		67.7110	0.1917	2556	2556.00
K1605693-001	42Y	21	200	71.9182	71.9183		71.9168	0.0014	7	7.00
K1605717-001	J16	457	100	75.0673	75.0671		75.0376	0.0297	297	297.00
K1605717-002	A50	145	100	103.8061	103.8057		103.7959	0.0102	102	102.00
K1605717-003	[34]	331	100	74.6820	74.6817		74.6645	0.0175	175	175.00
K1605717-004	Dianne	234	100	85.9208	85.9206		85.9091	0.0117	117	117.00
K1605717-005	18Y	234	100	80.6755	80.6753		80.6630	0.0125	125	125.00
K1605750-002	BH	192	100	73.4633	73.4630		73.4518	0.0115	115	115.00
K1605624-002D	XIV	461	100	74.9552	74.9550		74.9338	0.0214	214	214.00
K1605717-003D	T9	331	100	73.9788	73.9784		73.9604	0.0184	184	184.00

Calculation: Dissolved Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Filter Lot #102036

ERA #:4033 Lot# 021115 ID# TDS-12-Gen-011-16-M T.V. = 714 K-Balance 31 105 oven: K - OVEN 06

Wt (1) Start	7:34	6/13/2016	Wt (2) S	9:47	6/13/2016	Wt (3) Start	180 oven: K - OVEN 02
Stop	8:36	6/13/2016	S	11:08	6/13/2016	Stop	Thermometer ID# Oven digital
Wt (1) Start	180		Wt (2) S	180		Wt (3) Start	
Temp Stop	180		Temp S	180		Temp Stop	

Wt (4) Start			Wt (5) Start			Wt (6) Start	
Stop			Stop			Stop	
Wt (4) Start			Wt (5) Start			Wt (6) Start	
Temp Stop			Temp Stop			Temp Stop	date / time

Analyzed By: MT Date Analyzed: 5/31/2016 18:11

Reviewed By: Date Reviewed: 06/13/16

ALS ENVIRONMENTAL

Work Order #.:

Method: EPA SM 2540 C

Analysis: Total Dissolved Solids

CCV Verification SN: 67095

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV1	99.9996	100.00%	CCV2	10.0000	100.00%	CCV5	100.0001	100.00%	CCV6	10.0000
Date/time	6/9/2016		Date/time	6/9/2016		Date/time	6/13/2016		Date/time	6/13/2016
CCV3	99.9996	100.00%	CCV4	10.0000	100.00%	CCV7	100.0000	100.00%	CCV8	10.0002
Date/time	6/9/2016		Date/time	6/9/2016		Date/time	6/13/2016		Date/time	6/13/2016

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV	99.9998	100.00%	CCV	10.0002	100.00%	CCV		0.00%	CCV	
Date/time	6/13/2016		Date/time	6/13/2016		Date/time			Date/time	
CCV	99.9999	100.00%	CCV	10.0001	100.00%	CCV		0.00%	CCV	
Date/time	6/13/2016		Date/time	6/13/2016		Date/time			Date/time	

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

			date	time
Analyzed By: MT	Date Analyzed:		5/31/2016	18:11
Reviewed By: [signature]	Date Reviewed:		06/13/16	

(4)

Work Request # Original (K160) 5604, 5607, 5608, 5610, 5615, 5624, 5750

Tier: II II II V II III IV

Date Analyzed: 6/1/16

Analyst: CES

Run # 499094

Analysis: Sm 2540 C/TDS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

$\boxed{\text{K1605607, 5608, \& 5615}}$ Rush

Final Approved by: [signature] Date: 6/6/16

DQREPORT

C:\Documents and Settings\adam.bradbury\My Documents\DATAQUAL.DOC

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** MTAYLOR **Analysis Lot:** 499094 **Method/Testcode:** SM 2540 C/TDS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605604-001	Solids, Total Dissolved	N/A		Water	1018.70 mg/L	75 mL	1020 mg/L	1		13			6/1/16 18:16	N	II
K1605604-002	Solids, Total Dissolved	N/A		Water	1008.00 mg/L	75 mL	1010 mg/L	1		13			6/1/16 18:16	N	II
K1605604-003	Solids, Total Dissolved	N/A		Water	29510.00 mg/L	10 mL	29500 mg/L	1		100			6/1/16 18:16	N	II
K1605604-004	Solids, Total Dissolved	N/A		Water	7.50 mg/L	200 mL	7.5 mg/L	1		5.0			6/1/16 18:16	N	II
K1605604-005	Solids, Total Dissolved	N/A		Water	22600.00 mg/L	10 mL	22600 mg/L	1		100			6/1/16 18:16	N	II
K1605604-006	Solids, Total Dissolved	N/A		Water	18780.00 mg/L	10 mL	18800 mg/L	1		100			6/1/16 18:16	N	II
K1605604-007	Solids, Total Dissolved	N/A		Water	1228.00 mg/L	75 mL	1230 mg/L	1		13			6/1/16 18:16	N	II
K1605607-001	Solids, Total Dissolved	N/A		Water	11.50 mg/L	200 mL	11.5 mg/L	1		5.0			6/1/16 18:16	N	II
K1605608-001	Solids, Total Dissolved	N/A		Water	172.00 mg/L	100 mL	172 mg/L	1		10			6/1/16 18:16	N	II
K1605610-001	Solids, Total Dissolved	N/A		Surface Water	302.00 mg/L	100 mL	302 mg/L	1		10			6/1/16 18:16	N	V
K1605610-002	Solids, Total Dissolved	N/A		Surface Water	306.00 mg/L	100 mL	306 mg/L	1		10			6/1/16 18:16	N	V
K1605610-003	Solids, Total Dissolved	N/A		Surface Water	246.00 mg/L	100 mL	246 mg/L	1		10			6/1/16 18:16	N	V
K1605610-004	Solids, Total Dissolved	N/A		Surface Water	449.00 mg/L	100 mL	449 mg/L	1		10			6/1/16 18:16	N	V
K1605610-005	Solids, Total Dissolved	N/A		Surface Water	1.00 mg/L	200 mL	5.0 mg/L U	1		5.0			6/1/16 18:16	N	V
K1605615-001	Solids, Total Dissolved	N/A		Water	2780.00 mg/L	50 mL	2780 mg/L	1		20			6/1/16 18:16	N	II
K1605624-007	Solids, Total Dissolved	N/A		Ground Water	738.70 mg/L	75 mL	739 mg/L	1		13			6/1/16 18:16	N	III
K1605624-008	Solids, Total Dissolved	N/A		Ground Water	663.00 mg/L	100 mL	663 mg/L	1		10			6/1/16 18:16	N	III
K1605750-003	Solids, Total Dissolved	N/A		Water	136.00 mg/L	100 mL	136 mg/L	1		10			6/1/16 18:16	N	IV
K1605750-004	Solids, Total Dissolved	N/A		Water	145.00 mg/L	100 mL	145 mg/L	1		10			6/1/16 18:16	N	IV
K1605750-005	Solids, Total Dissolved	N/A		Water	506.00 mg/L	100 mL	506 mg/L	1		10			6/1/16 18:16	N	IV
KQ1605939-01	Solids, Total Dissolved	MB		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			6/1/16 18:16	N	II
KQ1605939-02	Solids, Total Dissolved	MB		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			6/1/16 18:16	N	II
KQ1605939-03	Solids, Total Dissolved	LCS		Water	710.00 mg/L	50 mL	710 mg/L	1		20	99		6/1/16 18:16	N	II
KQ1605939-04	Solids, Total Dissolved	DUP	K1605604-001	Water	1016.00 mg/L	75 mL	1020 mg/L	1		13		<1	6/1/16 18:16	N	II
KQ1605939-05	Solids, Total Dissolved	DUP	K1605615-001	Water	2808.00 mg/L	50 mL	2810 mg/L	1		20		1	6/1/16 18:16	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

499094

Work Order #.: K1605604,5607,5608,5610,5615,5624,5750

Method: EPA SM 2540 C

Analysis: Total Dissolved Solids

Sample #	Crucible #	Conductivity	Sample Volume (ml)	Wt, Cru. + Dry sample (1) (g)	Wt, Cru. + Dry sample (2) (g)	Wt, Cru. + Dry sample (3) (g)	Wt. Crucible (g)	Wt. Dry Sample (g)	TDS (mg/L)	TDS (mg/L) reported
MB	42Y		200	71.9228	71.9228		71.9228	0.0000	0	<5
MB	[40]		200	74.3116	74.3116		74.3116	0.0000	0	<5
LCS	A15		50	95.0519	95.0519		95.0164	0.0355	710	710.00
K1605604-001	A67	1760	75	101.2619	101.2618		101.1855	0.0764	1019	1018.70
K1605604-002	A30	1760	75	103.2012	103.2010		103.1256	0.0756	1008	1008.00
K1605604-003	A41	31000	10	96.8289	96.8286		96.5338	0.2951	29510	29510.00
K1605604-004	24Y	12	200	72.6767	72.6767		72.6752	0.0015	8	7.50
K1605604-005	A48	23000	10	93.7491	93.7488		93.5231	0.2260	22600	22600.00
K1605604-006	A1	21000	10	92.5059	92.5055		92.3181	0.1878	18780	18780.00
K1605604-007	A28	2100	75	104.9349	104.9345		104.8428	0.0921	1228	1228.00
K1605607-001	[24]	24	200	74.1723	74.1721		74.1700	0.0023	12	11.50
K1605608-001	A39	308	100	91.5659	91.5655		91.5487	0.0172	172	172.00
K1605610-001	[26]	470	100	78.7743	78.7741		78.7441	0.0302	302	302.00
K1605610-002	A10	466	100	81.5261	81.5258		81.4955	0.0306	306	306.00
K1605610-003	A54	353	100	88.9850	88.9850		88.9604	0.0246	246	246.00
K1605610-004	S7	624	100	74.0924	74.0920		74.0475	0.0449	449	449.00
K1605610-005	A18	2	200	75.6483	75.6482		75.6481	0.0002	1	<5
K1605615-001	11Y	5300	50	84.0780	84.0778		83.9390	0.1390	2780	2780.00
K1605624-007	A62	1051	75	102.6883	102.6881		102.6329	0.0554	739	738.70
K1605624-008	[23]	953	100	74.1545	74.1542		74.0882	0.0663	663	663.00
K1605750-003	XIV	191	100	74.9325	74.9323		74.9189	0.0136	136	136.00
K1605750-004	A56	226	100	101.2908	101.2905		101.2763	0.0145	145	145.00
K1605750-005	A58	967	100	96.3796	96.3793		96.3290	0.0506	506	506.00
K1605604-001D	A71	1760	75	88.8980	88.8979		88.8218	0.0762	1016	1016.00
K1605615-001D	T8	5300	50	69.4752	69.4750		69.3348	0.1404	2808	2808.00

Calculation: Dissolved Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Filter Lot #102036

ERA #:4033 Lot# 021115 ID# TDS-12-Gen-011-16-M T.V. = 714 K-Balance 31 105 oven: K - OVEN 06

Wt (1) Start	7:21	6/6/2016	Wt (2) S	9:33	6/6/2016	Wt (3) Start		180 oven: K - OVEN 02
Stop	8:23	6/6/2016	S	10:44	6/6/2016	Stop		Thermometer ID# Oven digital
Wt (1) Start	180		Wt (2) S	180		Wt (3) Start		
Temp Stop	180		Temp S	180		Temp Stop		
Wt (4) Start			Wt (5) Start			Wt (6) Start		
Stop			Stop			Stop		
Wt (4) Start			Wt (5) Start			Wt (6) Start		
Temp Stop			Temp Stop			Temp Stop		date / time

Analyzed By: CES Date Analyzed: 6/1/2016 18:16

Reviewed By: V Date Reviewed: 6/6/16

ALS ENVIRONMENTAL

Work Order #.:

Analysis: Total Dissolved Solids

Method: EPA SM 2540 C

CCV Verification SN: 67095

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV1	100.0000	100.00%	CCV2	9.9999	100.00%	CCV5	99.9997	100.00%	CCV6	9.9999
Date/time	6/3/2016		Date/time	6/3/2016		Date/time	6/6/2016		Date/time	6/6/2016
CCV3	99.9999	100.00%	CCV4	10.0000	100.00%	CCV7	99.9997	100.00%	CCV8	10.0000
Date/time	6/3/2016		Date/time	6/3/2016		Date/time	6/6/2016		Date/time	6/6/2016

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV	99.9997	100.00%	CCV	10.0000	100.00%	CCV		0.00%	CCV	
Date/time	6/6/2016		Date/time	6/6/2016		Date/time			Date/time	
CCV	99.9998	100.00%	CCV	10.0001	100.00%	CCV		0.00%	CCV	
Date/time	6/6/2016		Date/time	6/6/2016		Date/time			Date/time	

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

1st weigh	100.0000 g	≤(+/- 0.1%)	2nd weigh	10.0000 g	≤(+/- 0.1%)	3rd weigh	100.0000 g	≤(+/- 0.1%)	4rd weigh	10.0000 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

				date	time
Analyzed By: MT		Date Analyzed:		6/1/2016	18:16
Reviewed By:		Date Reviewed:	6/6/16		

Work Request # Original (K160) 4477, 5532, 5687, 5694, 5695, 5717, 5750

Tier:

Date Analyzed: 5/31/16

Analyst: SL

Run # 498899

Analysis: TSS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

Final Approved by: Date: ~~6/3~~ 6/1/16

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** MTAYLOR **Analysis Lot:** 498899 **Method/Testcode:** SM 2540 D/TSS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1604477-038	Solids, Total Suspended (TSS)	N/A		Water	23.00 mg/L	100 mL	23 mg/L	1		10			5/31/16 15:14	N	I
K1604477-039	Solids, Total Suspended (TSS)	N/A		Water	22.00 mg/L	100 mL	22 mg/L	1		10			5/31/16 15:14	N	I
K1605532-003	Solids, Total Suspended (TSS)	N/A		Water	5760.00 mg/L	5 mL	5760 mg/L	1		200			5/31/16 15:14	N	I
K1605687-001	Solids, Total Suspended (TSS)	N/A		Water	14.00 mg/L	200 mL	14.0 mg/L	1		5.0			5/31/16 15:14	N	II
K1605687-002	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 mL	13.0 mg/L	1		5.0			5/31/16 15:14	N	II
K1605694-002	Solids, Total Suspended (TSS)	N/A		Water	89.50 mg/L	200 mL	89.5 mg/L	1		5.0			5/31/16 15:14	N	IV
K1605694-004	Solids, Total Suspended (TSS)	N/A		Water	157.00 mg/L	100 mL	157 mg/L	1		10			5/31/16 15:14	N	IV
K1605694-006	Solids, Total Suspended (TSS)	N/A		Water	68.50 mg/L	200 mL	68.5 mg/L	1		5.0			5/31/16 15:14	N	IV
K1605695-001	Solids, Total Suspended (TSS)	N/A		Water	60.50 mg/L	200 mL	60.5 mg/L	1		5.0			5/31/16 15:14	N	IV
K1605695-002	Solids, Total Suspended (TSS)	N/A		Water	63.50 mg/L	200 mL	63.5 mg/L	1		5.0			5/31/16 15:14	N	IV
K1605695-003	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 15:14	N	IV
K1605717-001	Solids, Total Suspended (TSS)	N/A		Water	18.50 mg/L	200 mL	18.5 mg/L	1		5.0			5/31/16 15:14	N	V
K1605717-002	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 15:14	N	V
K1605717-003	Solids, Total Suspended (TSS)	N/A		Water	52.50 mg/L	200 mL	52.5 mg/L	1		5.0			5/31/16 15:14	Y	V
K1605717-004	Solids, Total Suspended (TSS)	N/A		Water	21.00 mg/L	200 mL	21.0 mg/L	1		5.0			5/31/16 15:14	N	V
K1605717-005	Solids, Total Suspended (TSS)	N/A		Water	18.00 mg/L	200 mL	18.0 mg/L	1		5.0			5/31/16 15:14	N	V
K1605750-002	Solids, Total Suspended (TSS)	N/A		Water	10.00 mg/L	200 mL	10.0 mg/L	1		5.0			5/31/16 15:14	N	V
K1605750-003	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 mL	13.0 mg/L	1		5.0			5/31/16 15:14	N	V
K1605750-004	Solids, Total Suspended (TSS)	N/A		Water	14.00 mg/L	200 mL	14.0 mg/L	1		5.0			5/31/16 15:14	N	V
K1605750-005	Solids, Total Suspended (TSS)	N/A		Water	38.50 mg/L	200 mL	38.5 mg/L	1		5.0			5/31/16 15:14	N	V
KQ1605708-01	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 15:14	N	I
KQ1605708-02	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	200 mL	5.0 mg/L U	1		5.0			5/31/16 15:14	N	I
KQ1605708-03	Solids, Total Suspended (TSS)	LCS		Water	138.00 mg/L	50 mL	138 mg/L	1		20	98		5/31/16 15:14	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** MTAYLOR **Analysis Lot:** 498899 **Method/Testcode:** SM 2540 D/TSS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1605708-04	Solids, Total Suspended (TSS)	DUP	K1605687-001	Water	13.00 mg/L	200 mL	13.0 mg/L	1		5.0		7	5/31/16 15:14	N	II
KQ1605708-05	Solids, Total Suspended (TSS)	DUP	K1605717-003	Water	53.50 mg/L	200 mL	53.5 mg/L	1		5.0		2	5/31/16 15:14	N	V

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

448999

Analysis: Total Suspended Solids Method: EPA SM 2540 D

K1604477,5532,5687,5694,5695,5717,5750

Sample #	Row #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1	t109151		200	0.0978	0.0978		0.0978	0.0000	0.00	(1000/RC[-7]
MB	2	t109152		200	0.1001	0.0999		0.1001	0.0000	0.00	(1000/RC[-7]
LCS	3	t109153		50	0.1070	0.1068		0.1001	0.0069	138.00	138.0
K1604477-038	4	t109154		100	0.1019	0.1018		0.0996	0.0023	23.00	23.0
K1604477-039	5	t109155		100	0.1011	0.1010		0.0989	0.0022	22.00	22.0
K1605532-003	6	t109156		5	0.1280	0.1280		0.0992	0.0288	5760.00	5760.0
K1605687-001	7	t109157		200	0.1025	0.1025		0.0997	0.0028	14.00	14.0
K1605687-002	8	t109158		200	0.1019	0.1018		0.0993	0.0026	13.00	13.0
K1605694-002	9	t109159		200	0.1152	0.1151		0.0973	0.0179	89.50	89.5
K1605694-004	10	t109160		100	0.1143	0.1141		0.0986	0.0157	157.00	157.0
K1605694-006	11	t109161		200	0.1120	0.1118		0.0983	0.0137	68.50	68.5
K1605695-001	12	t109162		200	0.1108	0.1105		0.0987	0.0121	60.50	60.5
K1605695-002	13	t109163		200	0.1105	0.1103		0.0978	0.0127	63.50	63.5
K1605695-003	14	t109164		200	0.0985	0.0985		0.0985	0.0000	0.00	(1000/RC[-7]
K1605717-001	15	t109165		200	0.1022	0.1022		0.0985	0.0037	18.50	18.5
K1605717-002	16	t109166		200	0.0991	0.0991		0.0984	0.0007	3.50	(1000/RC[-7]
K1605717-003	17	t109167		200	0.1073	0.1073		0.0968	0.0105	52.50	52.5
K1605717-004	18	t109168		200	0.1039	0.1039		0.0997	0.0042	21.00	21.0
K1605717-005	19	t109169		200	0.0991	0.0991		0.0955	0.0036	18.00	18.0
K1605750-002	20	t109170		200	0.1002	0.1002		0.0982	0.0020	10.00	10.0
K1605750-003	21	t109171		200	0.0996	0.0996		0.0970	0.0026	13.00	13.0
K1605750-004	22	t109172		200	0.0993	0.0994		0.0965	0.0028	14.00	14.0
K1605750-005	23	t109173		200	0.1061	0.1061		0.0984	0.0077	38.50	38.5
K1605687-001D	24	t109174		200	0.1002	0.1002		0.0976	0.0026	13.00	13.0
K1605717-003D	25	t109175		200	0.1086	0.1086		0.0979	0.0107	53.50	53.5

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) K-Balance 31 105 oven: K - OVEN 06

ERA #:4033 Lot# 0 21115 ID# TDS/12-Gen- 011-16-M T.V. = 141 Filter Lot # 102036

Wt (1) Start	15:45	5/31/2016	Wt (2) S	9:48	6/1/2016	Wt (3) Start	Thermometer: Oven digital
Stop	9:11	6/1/2016	S	10:59	6/1/2016	Stop	
Wt (1) Start	105		Wt (2) S	105		Wt (3) Start	
Temp Stop	105		Temp S	105		Temp Stop	

Wt (4) Start			Wt (5) Start		Wt (6) Start	
Stop			Stop		Stop	
Wt (4) Start			Wt (5) Start		Wt (6) Start	
Temp Stop			Temp Stop		Temp Stop	date / time

Analyzed By:	SC	Date Analyzed:	5/31/2016	15:14
Reviewed By:		Date Reviewed:	6/1/16	

Analysis: Total Suspended Solids Method: EPA SM 2540 D

CCV Verification SN: 67095

1st weigh	1.0000 g	≤(+/- 0.1%)	2nd weigh	0.0100 g	≤(+/- 0.1%)	3rd weigh	1.0000 g	≤(+/- 0.1%)	4rd weigh	0.0100 g
CCV1	1.0000	100.00%	CCV2	0.0100	100.00%	CCV5	1.0000	100.00%	CCV6	0.0100
Date/time	6/1/2016		Date/tim	6/1/2016		Date/time	6/1/2016		Date/time	6/1/2016
CCV3	1.0000	100.00%	CCV4	0.0100	100.00%	CCV7	1.0000	100.00%	CCV8	0.0100
Date/time	6/1/2016		Date/tim	6/1/2016		Date/time	6/1/2016		Date/time	6/1/2016

1st weigh	1.0000 g	≤(+/- 0.1%)	2nd weigh	0.0100 g	≤(+/- 0.1%)	3rd weigh	1.0000 g	≤(+/- 0.1%)	4rd weigh	0.0100 g
CCV9		0.00%	CCV10		0.00%	CCV13		0.00%	CCV14	
Date/time			Date/time			Date/time			Date/time	
CCV11		0.00%	CCV12		0.00%	CCV15		0.00%	CCV16	
Date/time			Date/time			Date/time			Date/time	

1st weigh	1.0000 g	≤(+/- 0.1%)	2nd weigh	0.0100 g	≤(+/- 0.1%)	3rd weigh	1.0000 g	≤(+/- 0.1%)	4rd weigh	0.0100 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

1st weigh	1.0000 g	≤(+/- 0.1%)	2nd weigh	0.0100 g	≤(+/- 0.1%)	3rd weigh	1.0000 g	≤(+/- 0.1%)	4rd weigh	0.0100 g
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	
CCV		0.00%	CCV		0.00%	CCV		0.00%	CCV	
Date/time			Date/time			Date/time			Date/time	

CCV Verification SN: 6549

1st weigh	1.0000 g	≤(+/- 0.5%)	2nd weigh	0.0100 g	≤(+/- 0.5%)	weigh	1.0000 g	≤(+/- 0.5%)	weigh	0.0100 g
CCV1		0.00%	CCV2		0.00%	CCV5		0.00%	CCV6	
CCV3		0.00%	CCV4		0.00%	CCV7		0.00%	CCV8	

			date	time
Analyzed By:	MT	Date Analyzed:	5/31/2016	15:14
Reviewed By:		Date Reviewed:	6/1/16	

Work Request # Original ( ) K1605511, 5512, 5698, 5749, 5750, 5782, 5862, 5465, 5516, 5558, 5627, 5657, 5695, 5879, 5916

Tier: III III IV IV IV IV IV IV III V III V IV I I

Date Analyzed: 6/11/16

Analyst: CES

Analysis: DOC / TOC

DOC: 500528, 500529

TOC 500530, 500531

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA (yes)
2.	Holding times met for all analyses and for all samples?	yes/no/NA (yes)
3.	Are calculations correct?	yes/no/NA (yes)
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA (NA)
5.	All quality control criteria met?	yes/no (no)
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA (yes)
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA (yes)
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA (no)
9.	Are results for methods blanks all ND?	yes/no/NA (yes)
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA (no)
11.	Are all exceptions explained?	yes/no/NA (yes)
12.	Have all applicable service requests been reviewed?	yes/no/NA (yes)
13.	Are all samples labeled correctly?	yes/no/NA (yes)
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA (yes)
15.	Are detection limits and units reported correctly?	yes/no/NA (yes)
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA (yes)
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA (no)

→ 5511, 5512, 5698, 5749, 5750, 5516, 5627, 5879, 5916

COMMENTS:

5511-8/d, 5512-2/d, 5749-1/d, 5750-1/d, 5782-2/d, 5862-2/d, 5465-6/d, 5695-3/d, 5879-1/d, 5916-2/d RPD not within acceptance limits; the sample results are less than 5x the MRL.

CCB7 Fail - RA 5558-43, 46, 49, 5627-6, 5657-9, 12, 15, 5695-2

The other samples in the failing brackets are 20x greater than CCB7.

Final Approved by: [signature] Date: 06/15/16

DQREPORT

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Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500528 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605511-005	Carbon, Dissolved Organic (DOC)	N/A		Water	0.90 mg/L	10 ml	0.90 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605511-006	Carbon, Dissolved Organic (DOC)	N/A		Water	0.43 mg/L	10 ml	0.43 mg/L J	1	0.07	0.50			6/11/16 16:03	N	III
K1605511-007	Carbon, Dissolved Organic (DOC)	N/A		Water	3.01 mg/L	10 ml	3.01 mg/L	1	0.07	0.50			6/11/16 16:03	Y	III
K1605511-008	Carbon, Dissolved Organic (DOC)	N/A		Water	0.52 mg/L	10 ml	0.52 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605511-009	Carbon, Dissolved Organic (DOC)	N/A		Water	1.04 mg/L	10 ml	1.04 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605511-010	Carbon, Dissolved Organic (DOC)	N/A		Water	2.76 mg/L	10 ml	2.76 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605511-011	Carbon, Dissolved Organic (DOC)	N/A		Water	0.90 mg/L	10 ml	0.90 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-001	Carbon, Dissolved Organic (DOC)	N/A		Water	2.49 mg/L	10 ml	2.49 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-002	Carbon, Dissolved Organic (DOC)	N/A		Water	1.30 mg/L	10 ml	1.30 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-003	Carbon, Dissolved Organic (DOC)	N/A		Water	0.81 mg/L	10 ml	0.81 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-004	Carbon, Dissolved Organic (DOC)	N/A		Water	0.75 mg/L	10 ml	0.75 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-005	Carbon, Dissolved Organic (DOC)	N/A		Water	2.55 mg/L	10 ml	2.55 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-006	Carbon, Dissolved Organic (DOC)	N/A		Water	0.56 mg/L	10 ml	0.56 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605512-007	Carbon, Dissolved Organic (DOC)	N/A		Water	3.08 mg/L	10 ml	3.08 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605698-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.25 mg/L	10 ml	2.25 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605749-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.53 mg/L	10 ml	2.53 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
KQ1606461-01	Carbon, Dissolved Organic (DOC)	DUP	K1605511-005	Water	0.91 mg/L	10 ml	0.91 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	III
KQ1606461-02	Carbon, Dissolved Organic (DOC)	DUP	K1605511-006	Water	0.46 mg/L	10 ml	0.46 mg/L J	1	0.07	0.50		6	6/11/16 16:03	N	III
KQ1606461-03	Carbon, Dissolved Organic (DOC)	MS	K1605511-007	Water	29.75 mg/L	10 ml	29.7 mg/L	1	0.07	0.50	107		6/11/16 16:03	N	III
KQ1606461-04	Carbon, Dissolved Organic (DOC)	DUP	K1605511-007	Water	2.96 mg/L	10 ml	2.96 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	III
KQ1606461-05	Carbon, Dissolved Organic (DOC)	DUP	K1605511-008	Water	0.37 mg/L	10 ml	0.37 mg/L J	1	0.07	0.50		33*	6/11/16 16:03	N	III
KQ1606461-06	Carbon, Dissolved Organic (DOC)	DUP	K1605511-009	Water	0.95 mg/L	10 ml	0.95 mg/L	1	0.07	0.50		10	6/11/16 16:03	N	III
KQ1606461-07	Carbon, Dissolved Organic (DOC)	DUP	K1605511-010	Water	2.79 mg/L	10 ml	2.79 mg/L	1	0.07	0.50		1	6/11/16 16:03	N	III

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/15/16

CES 6/14/16

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500528 **Method/Testcode:** SM 5310 C/TOC D

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
Q1606461-08	Carbon, Dissolved Organic (DOC)	DUP	K1605511-011	Water	0.82 mg/L	10 ml	0.82 mg/L	1	0.07	0.50		10	6/11/16 16:03	N	III
Q1606461-09	Carbon, Dissolved Organic (DOC)	MS	K1605512-001	Water	28.94 mg/L	10 ml	28.9 mg/L	1	0.07	0.50	106		6/11/16 16:03	N	III
Q1606461-10	Carbon, Dissolved Organic (DOC)	DUP	K1605512-001	Water	2.41 mg/L	10 ml	2.41 mg/L	1	0.07	0.50		3	6/11/16 16:03	N	III
Q1606461-11	Carbon, Dissolved Organic (DOC)	DUP	K1605512-002	Water	1.10 mg/L	10 ml	1.10 mg/L	1	0.07	0.50		17*	6/11/16 16:03	N	III
Q1606461-12	Carbon, Dissolved Organic (DOC)	DUP	K1605512-003	Water	0.74 mg/L	10 ml	0.74 mg/L	1	0.07	0.50		10	6/11/16 16:03	N	III
Q1606461-13	Carbon, Dissolved Organic (DOC)	DUP	K1605512-004	Water	0.76 mg/L	10 ml	0.76 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	III
Q1606461-14	Carbon, Dissolved Organic (DOC)	DUP	K1605512-005	Water	2.57 mg/L	10 ml	2.57 mg/L	1	0.07	0.50		1	6/11/16 16:03	N	III
Q1606461-15	Carbon, Dissolved Organic (DOC)	DUP	K1605512-006	Water	0.60 mg/L	10 ml	0.60 mg/L	1	0.07	0.50		7	6/11/16 16:03	N	III
Q1606461-16	Carbon, Dissolved Organic (DOC)	DUP	K1605512-007	Water	2.98 mg/L	10 ml	2.98 mg/L	1	0.07	0.50		3	6/11/16 16:03	N	III
Q1606461-17	Carbon, Dissolved Organic (DOC)	MS	K1605698-001	Surface Water	28.15 mg/L	10 ml	28.1 mg/L	1	0.07	0.50	104		6/11/16 16:03	N	V
Q1606461-18	Carbon, Dissolved Organic (DOC)	DMS	K1605698-001	Surface Water	27.69 mg/L	10 ml	27.7 mg/L	1	0.07	0.50	102	2	6/11/16 16:03	N	V
Q1606461-19	Carbon, Dissolved Organic (DOC)	DUP	K1605698-001	Surface Water	2.14 mg/L	10 ml	2.14 mg/L	1	0.07	0.50		5	6/11/16 16:03	N	V
Q1606461-20	Carbon, Dissolved Organic (DOC)	MS	K1605749-001	Surface Water	27.95 mg/L	10 ml	27.9 mg/L	1	0.07	0.50	102		6/11/16 16:03	N	V
Q1606461-21	Carbon, Dissolved Organic (DOC)	DMS	K1605749-001	Surface Water	27.85 mg/L	10 ml	27.9 mg/L	1	0.07	0.50	101	<1	6/11/16 16:03	N	V
Q1606461-22	Carbon, Dissolved Organic (DOC)	DUP	K1605749-001	Surface Water	2.25 mg/L	10 ml	2.25 mg/L	1	0.07	0.50		12*	6/11/16 16:03	N	V
Q1606461-23	Carbon, Dissolved Organic (DOC)	MB		Water	-0.06 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	III
Q1606461-24	Carbon, Dissolved Organic (DOC)	LCS		Water	24.63 mg/L	10 ml	24.6 mg/L	1	0.07	0.50	103		6/11/16 16:03	N	III
Q1606461-25	Carbon, Dissolved Organic (DOC)	CCV		Water	24.41 mg/L	10 ml	24.4 mg/L	1			98		6/11/16 16:03	N	III
Q1606461-26	Carbon, Dissolved Organic (DOC)	CCV		Water	24.27 mg/L	10 ml	24.3 mg/L	1			97		6/11/16 16:03	N	III
Q1606461-27	Carbon, Dissolved Organic (DOC)	CCV		Water	23.54 mg/L	10 ml	23.5 mg/L	1			94		6/11/16 16:03	N	III
Q1606461-28	Carbon, Dissolved Organic (DOC)	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1			94		6/11/16 16:03	N	III
Q1606461-29	Carbon, Dissolved Organic (DOC)	CCB		Water	0.04 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	III
Q1606461-30	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.04 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	III

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrumeut Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500528 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606461-31	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	III
KQ1606461-32	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.05 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500529 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605750-001	Carbon, Dissolved Organic (DOC)	N/A		Water	0.53 mg/L	10 ml	0.53 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605750-002	Carbon, Dissolved Organic (DOC)	N/A		Water	9.89 mg/L	10 ml	9.89 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605750-003	Carbon, Dissolved Organic (DOC)	N/A		Water	9.50 mg/L	10 ml	9.50 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605750-004	Carbon, Dissolved Organic (DOC)	N/A		Water	9.55 mg/L	10 ml	9.55 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605750-005	Carbon, Dissolved Organic (DOC)	N/A		Water	7.07 mg/L	10 ml	14.1 mg/L	2	0.2	1.0			6/11/16 16:03	N	IV
K1605782-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.77 mg/L	10 ml	1.77 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605782-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.73 mg/L	10 ml	1.73 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605862-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.87 mg/L	10 ml	1.87 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605862-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.04 mg/L	10 ml	2.04 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605862-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.08 mg/L	10 ml	0.08 mg/L J	1	0.07	0.50			6/11/16 16:03	N	V
KQ1606462-01	Carbon, Dissolved Organic (DOC)	MS	K1605750-001	Water	25.90 mg/L	10 ml	25.9 mg/L	1	0.07	0.50	101		6/11/16 16:03	N	IV
KQ1606462-02	Carbon, Dissolved Organic (DOC)	DUP	K1605750-001	Water	0.34 mg/L	10 ml	0.34 mg/L J	1	0.07	0.50		44*	6/11/16 16:03	N	IV
KQ1606462-03	Carbon, Dissolved Organic (DOC)	DUP	K1605750-002	Water	9.64 mg/L	10 ml	9.64 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	IV
KQ1606462-04	Carbon, Dissolved Organic (DOC)	DUP	K1605750-003	Water	9.51 mg/L	10 ml	9.51 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	IV
KQ1606462-05	Carbon, Dissolved Organic (DOC)	DUP	K1605750-004	Water	9.60 mg/L	10 ml	9.60 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	IV
KQ1606462-06	Carbon, Dissolved Organic (DOC)	DUP	K1605750-005	Water	6.98 mg/L	10 ml	14.0 mg/L	2	0.2	1.0		1	6/11/16 16:03	N	IV
KQ1606462-07	Carbon, Dissolved Organic (DOC)	MS	K1605782-001	Surface Water	27.43 mg/L	10 ml	27.4 mg/L	1	0.07	0.50	103		6/11/16 16:03	N	V
KQ1606462-08	Carbon, Dissolved Organic (DOC)	DMS	K1605782-001	Surface Water	27.09 mg/L	10 ml	27.1 mg/L	1	0.07	0.50	101	1	6/11/16 16:03	N	V
KQ1606462-09	Carbon, Dissolved Organic (DOC)	DUP	K1605782-001	Surface Water	1.73 mg/L	10 ml	1.73 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	V
KQ1606462-10	Carbon, Dissolved Organic (DOC)	DUP	K1605782-002	Surface Water	1.45 mg/L	10 ml	1.45 mg/L	1	0.07	0.50		18*	6/11/16 16:03	N	V
KQ1606462-11	Carbon, Dissolved Organic (DOC)	MS	K1605862-001	Surface Water	27.37 mg/L	10 ml	27.4 mg/L	1	0.07	0.50	102		6/11/16 16:03	N	V
KQ1606462-12	Carbon, Dissolved Organic (DOC)	DMS	K1605862-001	Surface Water	27.58 mg/L	10 ml	27.6 mg/L	1	0.07	0.50	103	<1	6/11/16 16:03	N	V
KQ1606462-13	Carbon, Dissolved Organic (DOC)	DUP	K1605862-001	Surface Water	1.83 mg/L	10 ml	1.83 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	V

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CES 6/14/16

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500529 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606462-14	Carbon, Dissolved Organic (DOC)	DUP	K1605862-002	Surface Water	1.77 mg/L	10 ml	1.77 mg/L	1	0.07	0.50		14*	6/11/16 16:03	N	V
KQ1606462-15	Carbon, Dissolved Organic (DOC)	DUP	K1605862-003	Surface Water	9.11999999999991E	10 ml	0.50 mg/L U	1	0.07	0.50		NC	6/11/16 16:03	N	V
KQ1606462-16	Carbon, Dissolved Organic (DOC)	MB		Water	1.91999999999992E	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606462-17	Carbon, Dissolved Organic (DOC)	LCS		Water	24.09 mg/L	10 ml	24.1 mg/L	1	0.07	0.50	100		6/11/16 16:03	N	IV
KQ1606462-18	Carbon, Dissolved Organic (DOC)	CCV		Water	23.54 mg/L	10 ml	23.5 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606462-19	Carbon, Dissolved Organic (DOC)	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606462-20	Carbon, Dissolved Organic (DOC)	CCV		Water	23.41 mg/L	10 ml	23.4 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606462-21	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606462-22	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.05 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606462-23	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV

‡ indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500530 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605465-001	Carbon, Total Organic	N/A		Water	3.49 mg/L	10 ml	3.49 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605465-002	Carbon, Total Organic	N/A		Water	3.95 mg/L	10 ml	3.95 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605465-003	Carbon, Total Organic	N/A		Water	4.79 mg/L	10 ml	4.79 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605465-004	Carbon, Total Organic	N/A		Water	0.16 mg/L	10 ml	0.16 mg/L J	1	0.07	0.50			6/11/16 16:03	N	IV
K1605465-005	Carbon, Total Organic	N/A		Water	4.22 mg/L	10 ml	4.22 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605465-006	Carbon, Total Organic	N/A		Water	2.03 mg/L	10 ml	2.03 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605516-001	Carbon, Total Organic	N/A		Water	5.31 mg/L	10 ml	5.31 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605558-009	Carbon, Total Organic	N/A		Water	15.98 mg/L	10 ml	32.0 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-012	Carbon, Total Organic	N/A		Water	16.94 mg/L	10 ml	33.9 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-015	Carbon, Total Organic	N/A		Water	17.82 mg/L	10 ml	35.6 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-026	Carbon, Total Organic	N/A		Water	36.04 mg/L	10 ml	72.1 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-029	Carbon, Total Organic	N/A		Water	39.91 mg/L	10 ml	79.8 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-032	Carbon, Total Organic	N/A		Water	38.17 mg/L	10 ml	76.3 mg/L	2	0.2	1.0			6/11/16 16:03	N	V
K1605558-043	Carbon, Total Organic	N/A		Water	7.60 mg/L	10 ml	7.60 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605558-046	Carbon, Total Organic	N/A		Water	6.24 mg/L	10 ml	6.24 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605558-049	Carbon, Total Organic	N/A		Water	6.25 mg/L	10 ml	6.25 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605627-006	Carbon, Total Organic	N/A		Water	4.97 mg/L	10 ml	4.97 mg/L	1	0.07	0.50			6/11/16 16:03	N	III
K1605657-009	Carbon, Total Organic	N/A		Water	5.66 mg/L	10 ml	5.66 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605657-012	Carbon, Total Organic	N/A		Water	5.74 mg/L	10 ml	5.74 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
K1605657-015	Carbon, Total Organic	N/A		Water	5.44 mg/L	10 ml	5.44 mg/L	1	0.07	0.50			6/11/16 16:03	N	V
KQ1606464-01	Carbon, Total Organic	MS	K1605465-001	Water	29.62 mg/L	10 ml	29.6 mg/L	1	0.07	0.50	105		6/11/16 16:03	N	IV
KQ1606464-02	Carbon, Total Organic	DUP	K1605465-001	Water	3.44 mg/L	10 ml	3.44 mg/L	1	0.07	0.50		1	6/11/16 16:03	N	IV
KQ1606464-03	Carbon, Total Organic	DUP	K1605465-002	Water	3.71 mg/L	10 ml	3.71 mg/L	1	0.07	0.50		6	6/11/16 16:03	N	IV
KQ1606464-04	Carbon, Total Organic	DUP	K1605465-003	Water	4.54 mg/L	10 ml	4.54 mg/L	1	0.07	0.50		5	6/11/16 16:03	N	IV
KQ1606464-05	Carbon, Total Organic	DUP	K1605465-004	Water	0.06 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	6/11/16 16:03	N	IV
KQ1606464-06	Carbon, Total Organic	DUP	K1605465-005	Water	4.08 mg/L	10 ml	4.08 mg/L	1	0.07	0.50		3	6/11/16 16:03	N	IV
KQ1606464-07	Carbon, Total Organic	DUP	K1605465-006	Water	1.79 mg/L	10 ml	1.79 mg/L	1	0.07	0.50		13*	6/11/16 16:03	N	IV
KQ1606464-08	Carbon, Total Organic	MS	K1605516-001	Water	31.09 mg/L	10 ml	31.1 mg/L	1	0.07	0.50	103		6/11/16 16:03	N	III
KQ1606464-09	Carbon, Total Organic	DUP	K1605516-001	Water	5.11 mg/L	10 ml	5.11 mg/L	1	0.07	0.50		4	6/11/16 16:03	N	III
KQ1606464-10	Carbon, Total Organic	MS	K1605558-009	Water	43.33 mg/L	10 ml	86.7 mg/L	2	0.2	1.0	109		6/11/16 16:03	N	V
KQ1606464-11	Carbon, Total Organic	DUP	K1605558-009	Water	16.15 mg/L	10 ml	32.3 mg/L	2	0.2	1.0		1	6/11/16 16:03	N	V
KQ1606464-12	Carbon, Total Organic	DUP	K1605558-012	Water	17.04 mg/L	10 ml	34.1 mg/L	2	0.2	1.0		<1	6/11/16 16:03	N	V
KQ1606464-13	Carbon, Total Organic	DUP	K1605558-015	Water	17.29 mg/L	10 ml	34.6 mg/L	2	0.2	1.0		3	6/11/16 16:03	N	V
KQ1606464-14	Carbon, Total Organic	DUP	K1605558-026	Water	35.91 mg/L	10 ml	71.8 mg/L	2	0.2	1.0		<1	6/11/16 16:03	N	V
KQ1606464-15	Carbon, Total Organic	DUP	K1605558-029	Water	41.00 mg/L	10 ml	82.0 mg/L	2	0.2	1.0		3	6/11/16 16:03	N	V
KQ1606464-16	Carbon, Total Organic	DUP	K1605558-032	Water	38.12 mg/L	10 ml	76.2 mg/L	2	0.2	1.0		<1	6/11/16 16:03	N	V

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/15/16 Fhuypll CES 6/14/16

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500530 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606464-17	Carbon, Total Organic	DUP	K1605558-043	Water	6.91 mg/L	10 ml	6.91 mg/L	1	0.07	0.50		9	6/11/16 16:03	N	V
KQ1606464-18	Carbon, Total Organic	DUP	K1605558-046	Water	6.24 mg/L	10 ml	6.24 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	V
KQ1606464-19	Carbon, Total Organic	DUP	K1605558-049	Water	6.26 mg/L	10 ml	6.26 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	V
KQ1606464-20	Carbon, Total Organic	DUP	K1605627-006	Water	4.94 mg/L	10 ml	4.94 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	III
KQ1606464-21	Carbon, Total Organic	MS	K1605657-009	Water	31.30 mg/L	10 ml	31.3 mg/L	1	0.07	0.50	103		6/11/16 16:03	N	V
KQ1606464-22	Carbon, Total Organic	DUP	K1605657-009	Water	5.55 mg/L	10 ml	5.55 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	V
KQ1606464-23	Carbon, Total Organic	DUP	K1605657-012	Water	5.62 mg/L	10 ml	5.62 mg/L	1	0.07	0.50		2	6/11/16 16:03	N	V
KQ1606464-24	Carbon, Total Organic	DUP	K1605657-015	Water	5.39 mg/L	10 ml	5.39 mg/L	1	0.07	0.50		<1	6/11/16 16:03	N	V
KQ1606464-25	Carbon, Total Organic	MB		Water	9.51999999999997E	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606464-26	Carbon, Total Organic	LCS		Water	24.38 mg/L	10 ml	24.4 mg/L	1	0.07	0.50	102		6/11/16 16:03	N	IV
KQ1606464-27	Carbon, Total Organic	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606464-28	Carbon, Total Organic	CCV		Water	23.41 mg/L	10 ml	23.4 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606464-29	Carbon, Total Organic	CCV		Water	23.72 mg/L	10 ml	23.7 mg/L	1			95		6/11/16 16:03	N	IV
KQ1606464-30	Carbon, Total Organic	CCV		Water	24.25 mg/L	10 ml	24.3 mg/L	1			97		6/11/16 16:03	N	IV
KQ1606464-31	Carbon, Total Organic	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606464-32	Carbon, Total Organic	CCB		Water	-0.05 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606464-33	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606464-34	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606464-35	Carbon, Total Organic	CCB		Water	0.53 mg/L	10 ml	0.53 mg/L	1	0.07	0.50	—		6/11/16 16:03	N	IV
KQ1606464-36	Carbon, Total Organic	CCB		Water	7.74199999999999E	10 ml	0.08 mg/L J	1	0.07	0.50			6/11/16 16:03	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** CSETHE **Analysis Lot:** 500531 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605695-001	Carbon, Total Organic	N/A		Water	1.90 mg/L	10 ml	1.90 mg/L	1	0.07	0.50			6/11/16 16:03	N	IV
K1605695-002	Carbon, Total Organic	N/A		Water	0.29 mg/L	10 ml	1.1 mg/L J	4	0.3	2.0			6/11/16 16:03	N	IV
K1605695-003	Carbon, Total Organic	N/A		Water	0.38 mg/L	10 ml	0.38 mg/L J	1	0.07	0.50			6/11/16 16:03	N	IV
K1605879-001	Carbon, Total Organic	N/A		Drinking Water	0.88 mg/L	10 ml	0.88 mg/L	1	0.07	0.50			6/11/16 16:03	N	I
K1605916-002	Carbon, Total Organic	N/A		Drinking Water	0.81 mg/L	10 ml	0.81 mg/L	1	0.07	0.50			6/11/16 16:03	N	I
K1605916-003	Carbon, Total Organic	N/A		Drinking Water	0.37 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	I
KQ1606465-01	Carbon, Total Organic	MS	K1605695-001	Water	25.90 mg/L	10 ml	25.9 mg/L	1	0.07	0.50	96		6/11/16 16:03	N	IV
KQ1606465-02	Carbon, Total Organic	DUP	K1605695-001	Water	1.79 mg/L	10 ml	1.79 mg/L	1	0.07	0.50		6	6/11/16 16:03	N	IV
KQ1606465-03	Carbon, Total Organic	DUP	K1605695-002	Water	0.20 mg/L	10 ml	0.8 mg/L J	4	0.3	2.0		37*	6/11/16 16:03	N	IV
KQ1606465-04	Carbon, Total Organic	DUP	K1605695-003	Water	0.29 mg/L	10 ml	0.29 mg/L J	1	0.07	0.50		28*	6/11/16 16:03	N	IV
KQ1606465-05	Carbon, Total Organic	DUP	K1605879-001	Drinking Water	0.79 mg/L	10 ml	0.79 mg/L	1	0.07	0.50		11*	6/11/16 16:03	N	I
KQ1606465-06	Carbon, Total Organic	DUP	K1605916-002	Drinking Water	0.66 mg/L	10 ml	0.66 mg/L	1	0.07	0.50		21*	6/11/16 16:03	N	I
KQ1606465-07	Carbon, Total Organic	DUP	K1605916-003	Drinking Water	0.32 mg/L	10 ml	0.32 mg/L J	1	0.07	0.50		NC	6/11/16 16:03	N	I
KQ1606465-08	Carbon, Total Organic	MB		Water	9.51999999999997E	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606465-09	Carbon, Total Organic	LCS		Water	24.38 mg/L	10 ml	24.4 mg/L	1	0.07	0.50	102		6/11/16 16:03	N	IV
KQ1606465-10	Carbon, Total Organic	CCV		Water	23.41 mg/L	10 ml	23.4 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606465-11	Carbon, Total Organic	CCV		Water	23.72 mg/L	10 ml	23.7 mg/L	1			95		6/11/16 16:03	N	IV
KQ1606465-12	Carbon, Total Organic	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1			94		6/11/16 16:03	N	IV
KQ1606465-13	Carbon, Total Organic	CCV		Water	23.22 mg/L	10 ml	23.2 mg/L	1			93		6/11/16 16:03	N	IV
KQ1606465-14	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606465-15	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606465-16	Carbon, Total Organic	CCB		Water	7.74199999999999E	10 ml	0.08 mg/L J	1	0.07	0.50			6/11/16 16:03	N	IV
KQ1606465-17	Carbon, Total Organic	CCB		Water	0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/11/16 16:03	N	IV

06/15/16

CES 6/14/16

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

DOC: 500528, 500529

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L
CBA	RB	1		0.6949	-0.6949	-0.69488	<0.5
2	CCV1	1	25.104	0.6949	24.4092	24.40922	24.4
3	CCB1	1	0.736	0.6949	0.0408	0.04082	<0.5
4	MB1	1	0.630	0.6949	-0.0649	-0.06488	<0.5
5	LCS1	1	25.324	0.6949	24.6292	24.62922	24.6
6	ICS	1	1.151	0.6949	0.4558	0.45582	<0.5
7	K1605511-005	1	1.600	0.6949	0.9048	0.90482	0.90
8	K1605511-005d	1	1.604	0.6949	0.9086	0.90862	0.91
9	K1605511-006	1	1.125	0.6949	0.4297	0.42972	<0.5
10	K1605511-006d	1	1.151	0.6949	0.4562	0.45622	<0.5
11	K1605511-007	1	3.705	0.6949	3.0104	3.01042	3.01
12	K1605511-007d	1	3.653	0.6949	2.9583	2.95832	2.96
13	K1605511-008	1	1.211	0.6949	0.5158	0.51582	0.52
14	K1605511-008d	1	1.063	0.6949	0.3681	0.36812	<0.5
15	K1605511-009	1	1.739	0.6949	1.0439	1.04392	1.04
16	K1605511-009d	1	1.644	0.6949	0.9490	0.94902	0.95
17	K1605511-010	1	3.456	0.6949	2.7613	2.76132	2.76
18	K1605511-010d	1	3.487	0.6949	2.7925	2.79252	2.79
19	CCV2	1	24.968	0.6949	24.2730	24.27302	24.3
20	CCB2	1	0.654	0.6949	-0.0410	-0.04098	<0.5
21	K1605511-011	1	1.598	0.6949	0.9034	0.90342	0.90
22	K1605511-011d	1	1.511	0.6949	0.8157	0.81572	0.82
23	K1605512-001	1	3.187	0.6949	2.4920	2.49202	2.49
24	K1605512-001d	1	3.109	0.6949	2.4136	2.41362	2.41
25	K1605512-001ms	1	29.631	0.6949	28.9365	28.93652	28.9

ICAL Date 2/29/16 ICAL ID#:11-GEN-05-47A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-48K)

CCV = 25.0 ppm (Ref.#11-GEN-05-49H)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-49C)

ICS TV = 25.0 ppm %Rec= 2

11-GEN-05-49F

		date	time
Analyzed By: CES	Date Analyzed	6/11/2016	16:03:00
Reviewed By: [signature]	Date Reviewed	06/15/16	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1605512-002	1	1.993	0.6949	1.2982	1.29822	1.30	
27	K1605512-002d	1	1.794	0.6949	1.0989	1.09892	1.10	
28	K1605512-003	1	1.506	0.6949	0.8111	0.81112	0.81	
29	K1605512-003d	1	1.432	0.6949	0.7367	0.73672	0.74	
30	K1605512-004	1	1.446	0.6949	0.7512	0.75122	0.75	
31	K1605512-004d	1	1.459	0.6949	0.7643	0.76432	0.76	
32	K1605512-005	1	3.241	0.6949	2.5458	2.54582	2.55	
33	K1605512-005d	1	3.266	0.6949	2.5715	2.57152	2.57	
34	K1605512-006	1	1.257	0.6949	0.5621	0.56212	0.56	
35	K1605512-006d	1	1.297	0.6949	0.6019	0.60192	0.60	
36	K1605512-007	1	3.775	0.6949	3.0796	3.07962	3.08	
37	K1605512-007d	1	3.675	0.6949	2.9796	2.97962	2.98	
38	K1605698-001	1	2.944	0.6949	2.2487	2.24872	2.25	
39	K1605698-001d	1	2.838	0.6949	2.1430	2.14302	2.14	
40	CCV3	1	24.230	0.6949	23.5352	23.53522	23.5	
41	CCB3	1	0.670	0.6949	-0.0245	-0.02448	<0.5	
42	MB2	1	0.697	0.6949	0.0019	0.00192	<0.5	
43	LCS2	1	24.781	0.6949	24.0862	24.08622	24.1	
44	K1605698-001ms	1	28.840	0.6949	28.1451	28.14512	28.1	
45	K1605698-001msd	1	28.383	0.6949	27.6879	27.68792	27.7	
46	K1605749-001	1	3.225	0.6949	2.5296	2.52962	2.53	
47	K1605749-001d	1	2.942	0.6949	2.2471	2.24712	2.25	
48	K1605749-001ms	1	28.641	0.6949	27.9457	27.94572	27.9	
49	K1605749-001msd	1	28.546	0.6949	27.8513	27.85132	27.9	
50	K1605750-001	1	1.228	0.6949	0.5329	0.53292	0.53	

Analyzed By: CES	Date Analyzed	6/11/2016	16:03:00
Reviewed By: [signature]	Date Reviewed	06/15/16	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correctiou, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L
51	K1605750-001d	1	1.036	0.6949	0.3411	0.34112	<0.5
52	K1605750-001ms	1	26.595	0.6949	25.9002	25.90022	25.9
53	K1605750-002	1	10.582	0.6949	9.8870	9.88702	9.89
54	K1605750-002d	1	10.339	0.6949	9.6442	9.64422	9.64
55	K1605750-003	1	10.193	0.6949	9.4981	9.49812	9.50
56	K1605750-003d	1	10.207	0.6949	9.5122	9.51222	9.51
57	K1605750-004	1	10.242	0.6949	9.5467	9.54672	9.55
58	K1605750-004d	1	10.293	0.6949	9.5976	9.59762	9.60
59	CCV4	1	24.282	0.6949	23.5870	23.58702	23.6
60	CCB4	1	0.642	0.6949	-0.0526	-0.05258	<0.5
61	K1605750-005	2	7.763	0.6949	7.0685	14.13704	14.1
62	K1605750-005d	2	7.671	0.6949	6.9756	13.95124	14.0
63	RB	1	0.647	0.6949	-0.0479	-0.04788	<0.5
64	RB	1	0.807	0.6949	0.1124	0.11242	<0.5
65	K1605782-001	1	2.462	0.6949	1.7674	1.76742	1.77
66	K1605782-001d	1	2.421	0.6949	1.7260	1.72602	1.73
67	K1605782-001ms	1	28.126	0.6949	27.4314	27.43142	27.4
68	K1605782-001msd	1	27.781	0.6949	27.0857	27.08572	27.1
69	K1605782-002	1	2.424	0.6949	1.7286	1.72862	1.73
70	K1605782-002d	1	2.142	0.6949	1.4470	1.44702	1.45
71	K1605862-001	1	2.564	0.6949	1.8686	1.86862	1.87
72	K1605862-001d	1	2.528	0.6949	1.8327	1.83272	1.83
73	K1605862-001ms	1	28.063	0.6949	27.3676	27.36762	27.4
74	K1605862-001msd	1	28.277	0.6949	27.5820	27.58202	27.6
75	K1605862-002	1	2.731	0.6949	2.0364	2.03642	2.04

Analyzed By:	CES	Date Analyzed	6/11/2016 16:03:00
Reviewed By:	[signature]	Date Reviewed	06/15/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
76	K1605862-002d	1	2.465	0.6949	1.7702	1.77022	1.77	
77	K1605862-003	1	0.773	0.6949	0.0781	0.07812	<0.5	
78	K1605862-003d	1	0.704	0.6949	0.0091	0.00912	<0.5	
79	CCV5	1	24.109	0.6949	23.4136	23.41362	23.4	
80	CCB5	1	0.663	0.6949	-0.0322	-0.03218	<0.5	
81	K1605511-007ms	1	30.443	0.6949	29.7479	29.74792	29.7	Out of sequence

CES
6/14/16

Analyzed By: CES	Date Analyzed 6/11/2016 16:03:00
Reviewed By: [signature]	Date Reviewed 06/15/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER)   Method:Oxidation EPA 415.1/9060/5310C

TOC: 500530, 500531

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L
CBA	RB	1		0.6949	-0.6949	-0.69488	<0.5
2	CCV4	1	24.282	0.6949	23.5870	23.58702	23.6
3	CCB4	1	0.642	0.6949	-0.0526	-0.05258	<0.5
4	K1605465-001	1	4.181	0.6949	3.4857	3.48572	3.49
5	K1605465-001d	1	4.131	0.6949	3.4358	3.43582	3.44
6	CCV5	1	24.109	0.6949	23.4136	23.41362	23.4
7	CCB5	1	0.663	0.6949	-0.0322	-0.03218	<0.5
8	MB3	1	0.704	0.6949	0.0095	0.00952	<0.5
9	LCS3	1	25.072	0.6949	24.3775	24.37752	24.4
10	K1605465-001ms	1	30.310	0.6949	29.6154	29.61542	29.6
11	K1605465-002	1	4.646	0.6949	3.9510	3.95102	3.95
12	K1605465-002d	1	4.407	0.6949	3.7125	3.71252	3.71
13	K1605465-003	1	5.485	0.6949	4.7899	4.78992	4.79
14	K1605465-003d	1	5.236	0.6949	4.5415	4.54152	4.54
15	K1605465-004	1	0.854	0.6949	0.1590	0.15902	<0.5
16	K1605465-004d	1	0.757	0.6949	0.0617	0.06172	<0.5
17	K1605465-005	1	4.919	0.6949	4.2238	4.22382	4.22
18	K1605465-005d	1	4.775	0.6949	4.0798	4.07982	4.08
19	K1605465-006	1	2.724	0.6949	2.0291	2.02912	2.03
20	K1605465-006d	1	2.485	0.6949	1.7902	1.79022	1.79
21	K1605516-001	1	6.003	0.6949	5.3080	5.30802	5.31
22	K1605516-001d	1	5.808	0.6949	5.1134	5.11342	5.11
23	K1605516-001ms	1	31.782	0.6949	31.0871	31.08712	31.1
24	CCV6	1	24.420	0.6949	23.7249	23.72492	23.7
25	CCB6	1	0.690	0.6949	-0.0048	-0.00478	<0.5

ICAL Date 2/29/16   ICAL ID#:11-GEN-05-47A

LCS =24.0 ppm APG 4013   Lot #010615 (REF# 11-GEN-05-48K)

CCV = 25.0 ppm (Ref.#11-GEN-05-49H)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml   =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-49C)

ICS TV = 25.0 ppm %Rec= 2

11-GEN-05-49F

		date	time
Analyzed By: CES	Date Analyzed	6/11/2016	16:03:00
Reviewed By: [signature]	Date Reviewed	06/15/16	

Revision 1, 2010   R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L
26	K1605558-009	2	16.672	0.6949	15.9771	31.95424	32.0
27	K1605558-009d	2	16.848	0.6949	16.1526	32.30524	32.3
28	K1605558-009ms	2	44.023	0.6949	43.3279	86.65584	86.7
29	RB	1	1.564	0.6949	0.8691	0.86912	0.87
30	RB	1	1.190	0.6949	0.4952	0.49522	<0.5
31	K1605558-012	2	17.636	0.6949	16.9406	33.88124	33.9
32	K1605558-012d	2	17.738	0.6949	17.0427	34.08544	34.1
33	K1605558-015	2	18.513	0.6949	17.8178	35.63564	35.6
34	K1605558-015d	2	17.986	0.6949	17.2913	34.58264	34.6
35	K1605558-026	2	36.733	0.6949	36.0379	72.07584	72.1
36	K1605558-026d	2	36.600	0.6949	35.9050	71.81004	71.8
37	RB	1	2.241	0.6949	1.5460	1.54602	1.55
38	RB	1	1.502	0.6949	0.8072	0.80722	0.81
39	K1605558-029	2	40.605	0.6949	39.9104	79.82084	79.8
40	K1605558-029d	2	41.693	0.6949	40.9976	81.99524	82.0
41	K1605558-032	2	38.866	0.6949	38.1709	76.34184	76.3
42	K1605558-032d	2	38.810	0.6949	38.1153	76.23064	76.2
43	K1605558-043	1	8.295	0.6949	7.5998	7.59982	7.60
44	K1605558-043d	1	7.609	0.6949	6.9140	6.91402	6.91
45	CCV7	1	24.949	0.6949	24.2540	24.25402	24.3
46	CCB7	1	1.223	0.6949	0.5285	0.52852	0.53
47	MB4	1	1.118	0.6949	0.4235	0.42352	<0.5
48	LCS4	1	25.331	0.6949	24.6359	24.63592	24.6
49	K1605558-046	1	6.932	0.6949	6.2367	6.23672	6.24
50	K1605558-046d	1	6.939	0.6949	6.2440	6.24402	6.24

Analyzed By: CES	Date Analyzed 6/11/16 16:03
Reviewed By: [signature]	Date Reviewed 06/15/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1605558-049	1	6.944	0.6949	6.2487	6.24872	6.25	
52	K1605558-049d	1	6.958	0.6949	6.2626	6.26262	6.26	
53	K1605627-006	1	5.669	0.6949	4.9736	4.97362	4.97	
54	K1605627-006d	1	5.631	0.6949	4.9356	4.93562	4.94	
55	RB	1	0.834	0.6949	0.1390	0.13902	<0.5	
56	RB	1	0.856	0.6949	0.1614	0.16142	<0.5	
57	K1605657-009	1	6.352	0.6949	5.6571	5.65712	5.66	
58	K1605657-009d	1	6.249	0.6949	5.5540	5.55402	5.55	
59	K1605657-009ms	1	31.998	0.6949	31.3034	31.30342	31.3	
60	K1605657-012	1	6.434	0.6949	5.7391	5.73912	5.74	
61	K1605657-012d	1	6.313	0.6949	5.6184	5.61842	5.62	
62	K1605657-015	1	6.134	0.6949	5.4387	5.43872	5.44	
63	K1605657-015d	1	6.086	0.6949	5.3911	5.39112	5.39	
64	CCV8	1	24.288	0.6949	23.5935	23.59352	23.6	
65	CCB8	1	0.772	0.6949	0.0774	0.07742	<0.5	
66	K1605695-001	1	2.591	0.6949	1.8964	1.89642	1.90	
67	K1605695-001d	1	2.480	0.6949	1.7855	1.78552	1.79	
68	K1605695-001ms	1	26.594	0.6949	25.8995	25.89952	25.9	
69	K1605695-002	4	0.982	0.6949	0.2874	1.14968	1.15	
70	K1605695-002d	4	0.893	0.6949	0.1976	0.79048	0.79	
71	K1605695-003	1	1.078	0.6949	0.3827	0.38272	<0.5	
72	K1605695-003d	1	0.983	0.6949	0.2884	0.28842	<0.5	
73	K1605879-001	1	1.573	0.6949	0.8776	0.87762	0.88	
74	K1605879-001d	1	1.482	0.6949	0.7868	0.78682	0.79	
75	K1605916-002	1	1.508	0.6949	0.8126	0.81262	0.81	

Analyzed By: CES	Date Analyzed 6/11/16 16:03
Reviewed By: [signature]	Date Reviewed 06/15/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L
76	K1605916-002d	1	1.353	0.6949	0.6578	0.65782	0.66
77	K1605916-003	1	1.062	0.6949	0.3673	0.36732	<0.5
78	K1605916-003d	1	1.010	0.6949	0.3150	0.31502	<0.5
79	CCV9	1	23.913	0.6949	23.2183	23.21832	23.2
80	CCB9	1	0.721	0.6949	0.0256	0.02562	<0.5

CES
6/14/16

Analyzed By: CES	Date Analyzed 6/11/16 16:05
Reviewed By: [signature]	Date Reviewed 06/15/16

DOC: 500528,
500529
TOC: 500530,
500531

Schedule: 061116B

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2016/06/11 15:42 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Running
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
4	Sample	K1605511-005.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1605511-006.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1605511-007.13 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1605511-007.13 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	K1605511-008.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1605511-009.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
10	Sample	K1605511-010.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
11	Sample	K1605511-011.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1605512-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1605512-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
14	Sample	K1605512-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1605512-003.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1605512-004.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1605512-005.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1605512-006.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1605512-007.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
20	Sample	K1605698-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
22	Sample	K1605698-001.02 ms/msd doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1605749-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1605749-001.02 ms/msd doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1605750-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1605750-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
27	Sample	K1605750-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1605750-003.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
29	Sample	K1605750-004.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	K1605750-005.03 doc 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1605782-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1605782-001.02 ms/msd doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1605782-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1605862-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1605862-001.02 ms/msd doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1605862-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1605862-003.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
39	Sample	K1605465-001.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 061116B

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
41	Sample	K1605465-001.05 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
42	Sample	K1605465-002.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1605465-003.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1605465-004.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1605465-005.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1605465-006.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1605516-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
48	Sample	K1605516-001.04 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
49	Sample	K1605558-009.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1605558-009.02 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
51	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1605558-012.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1605558-015.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1605558-026.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1605558-029.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1605558-032.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
58	Sample	K1605558-043.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
60	Sample	K1605558-046.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1605558-049.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1605627-006.06	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	K1605657-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1605657-009.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
66	Sample	K1605657-012.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
67	Sample	K1605657-015.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
68	Sample	K1605695-001.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1605695-001.14 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
70	Sample	K1605695-002.12 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
71	Sample	K1605695-003.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	K1605879-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
73	Sample	K1605916-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1605916-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

0.736	0.736	0.736	0.736	OBSERVATIONS	19	0.7357
0.630	0.630	0.630	0.630	STD Deviation	0.43379	0.63
0.654	0.654	0.654	0.654	AVERAGE	0.94065	0.6539
0.670	0.670	0.670	0.670	UCL	1.37444	0.6704
0.697	0.697	0.697	0.697	LCL	0.50686	0.6968
0.642	0.642	0.642	0.642			0.6423
0.647	0.647	0.647	0.647			0.647
0.807	0.807	0.807	0.807	OBSERVATIONS	16	0.8073
0.663	0.663	0.663	0.663	STD Deviation	0.39509	0.6627
0.704	0.704	0.704	0.704	AVERAGE	0.78533	0.7044
0.690	0.690	0.690	0.690	UCL	1.18042	0.6901
1.564				LCL	0.39024	ABOVE
1.190	1.190					1.1901
2.241						ABOVE
1.502				OBSERVATIONS	14	ABOVE
1.223	1.223			STD Deviation	0.34419	1.2234
1.118	1.118	1.118		AVERAGE	0.72513	1.1184
0.772	0.772	0.772	0.772	UCL	1.06932	0.7723
0.721	0.721	0.721	0.721	LCL	0.38093	0.7205
						BELOW
						BELOW
				OBSERVATIONS	13	BELOW
				STD Deviation	0.05512	BELOW
				AVERAGE	0.69488	BELOW
						BELOW
						BELOW
						BELOW
						BELOW
						BELOW
						BELOW

06/15/16

Fusion Report - 061116B
Saturday, June 11, 2016 02:10 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2016/06/13 09:02 - Monday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	061116B	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v7)		
Comment:			

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Report Results

Sample Type: Clean   From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/11 14:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.48	16.68	5.20	49.56	05:19
2	TC Clean	7.34	9.33	2.00	50.14	03:59
3	TC Clean	2.56	4.81	2.26	51.09	03:47
4	TC Clean	2.75	4.75	2.00	50.56	03:43

Sample Type: Clean   From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/11 14:32

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.75	2.78	2.03	48.77	05:09
2	TC Clean	5.16	7.06	1.90	50.49	03:58
3	TC Clean	3.51	5.73	2.22	50.52	03:51

4	TC Clean	2.65	4.72	2.07	50.15	03:47

Sample Type: Clean From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/11 14:53

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.79	2.81	2.02	48.89	05:18
2	TC Clean	5.35	7.49	2.14	50.71	03:59
3	TC Clean	3.41	5.66	2.25	50.87	03:41
4	TC Clean	3.00	4.99	1.99	51.06	03:41

Sample Type: Blank (Creating v875) From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2016/06/11 15:15

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.72	2.89	2.17	48.63	05:07
2	TC Clean	5.68	8.33	2.65	50.43	04:05
3	TC Clean	2.86	5.83	2.98	50.46	03:49
4	TC Clean	3.16	5.62	2.46	50.56	03:50
5	Reagent Blank	4.22	6.61	2.39	50.66	05:00
6	Acid Blank	0.50	2.77	2.27	48.73	05:27

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	1.1058 ppm (PASS)	0.0000 ppm	0%	2016/06/11 15:48

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	1.1058	11.0584	16.32	18.28	1.96	53.84	10:31

Completion State Success Action Method Calibration STD Conc - Pos D

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1041 ppm (PASS)	0.0000 ppm	0%	2016/06/11 16:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1041	251.0406	193.08	195.51	2.43	53.82	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7357 ppm (PASS)	0.0000 ppm	0%	2016/06/11 16:17

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7357	7.3574	13.59	15.66	2.06	53.88	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.6300 ppm	0.0000 ppm	0.0000%	2016/06/11 16:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6300	6.3002	12.28	14.66	2.39	53.83	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration	Dil	Sample ID	Min / Max	Result	Std. Dev.	RSD	Start Time

			(ppm)			(% dev)				
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.3241 ppm (PASS)	0.0000 ppm	0%	2016/06/11 16:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	25.3241	253.2414	194.70	196.79	2.10	53.96	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	ICS	1.1507 ppm	0.0000 ppm	0.0000%	2016/06/11 17:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1507	11.5069	16.11	18.38	2.27	53.89	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1605511-005.03 doc	1.6016 ppm	0.0027 ppm	0.1700%	2016/06/11 17:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5997	15.9967	19.42	21.44	2.02	53.88	10:27
2	TOC	1.6035	16.0347	19.45	21.64	2.19	53.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1605511-006.03 doc	1.1379 ppm	0.0187 ppm	1.6500%	2016/06/11 17:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1246	11.2462	15.92	17.99	2.07	53.91	10:27
2	TOC	1.1511	11.5109	16.12	17.93	1.81	54.03	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1605511-007.13 doc	3.6792 ppm	0.0369 ppm	1.0000%	2016/06/11 18:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7053	37.0530	34.93	36.95	2.02	53.94	10:26
2	TOC	3.6532	36.5316	34.54	36.61	2.07	53.89	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1605511-007.13 ms doc	30.4428 ppm	0.0000 ppm	0.0000%	2016/06/11 18:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.4428	304.4277	231.86	234.02	2.16	54.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1605511-008.03 doc	1.1368 ppm	0.1045 ppm	9.1900%	2016/06/11 18:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2107	12.1070	16.55	18.51	1.96	53.93	10:24
2	TOC	1.0630	10.6298	15.47	18.00	2.54	53.91	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1605511-009.03 doc	1.6914 ppm	0.0671 ppm	3.9700%	2016/06/11 19:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7388	17.3883	20.44	22.52	2.08	53.91	10:28
2	TOC	1.6439	16.4393	19.74	22.11	2.36	53.98	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1605511-010.03 doc	3.4718 ppm	0.0221 ppm	0.6400%	2016/06/11 19:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.4562	34.5616	33.09	35.22	2.12	54.01	10:26
2	TOC	3.4874	34.8739	33.32	35.30	1.98	53.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC)	CAS_salt_010711	CAS_salt_010711

(v875) (v3) (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9679 ppm (PASS)	0.0000 ppm	0%	2016/06/11 20:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9679	249.6789	192.07	194.04	1.97	53.99	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6539 ppm (PASS)	0.0000 ppm	0%	2016/06/11 20:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6539	6.5387	12.99	15.51	2.52	54.00	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1605511-011.03 doc	1.5545 ppm	0.0620 ppm	3.9900%	2016/06/11 20:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5983	15.9831	19.41	21.48	2.07	54.03	10:30
2	TOC	1.5106	15.1061	18.76	20.88	2.11	54.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1605512-001.03 doc	3.1477 ppm	0.0555 ppm	1.7600%	2016/06/11 21:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1869	31.8693	31.11	32.88	1.77	54.07	10:28
2	TOC	3.1085	31.0846	30.53	32.44	1.90	54.09	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1605512-001.03 ms doc	29.6314 ppm	0.0000 ppm	0.0000%	2016/06/11 21:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.6314	296.3142	225.89	227.95	2.06	54.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1605512-002.03 doc	1.8935 ppm	0.1409 ppm	7.4400%	2016/06/11 21:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9931	19.9313	22.32	24.53	2.21	54.11	10:25
2	TOC	1.7938	17.9382	20.85	22.96	2.11	54.12	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1605512-003.03 doc	1.4688 ppm	0.0526 ppm	3.5800%	2016/06/11 22:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5060	15.0599	18.73	20.62	1.89	54.15	10:26
2	TOC	1.4316	14.3159	18.18	20.16	1.98	54.17	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1605512-004.03 doc	1.4526 ppm	0.0092 ppm	0.6300%	2016/06/11 22:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4461	14.4612	18.29	20.11	1.82	54.19	10:25
2	TOC	1.4592	14.5915	18.38	20.05	1.67	54.23	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC)	CAS_salt_010711	CAS_salt_010711

(v875) (v3) (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1605512-005.03 doc	3.2535 ppm	0.0181 ppm	0.5600%	2016/06/11 23:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2407	32.4070	31.51	33.33	1.83	54.24	10:29
2	TOC	3.2664	32.6636	31.70	33.40	1.70	54.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1605512-006.03 doc	1.2769 ppm	0.0281 ppm	2.2000%	2016/06/11 23:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2570	12.5699	16.90	19.02	2.13	54.29	10:27
2	TOC	1.2968	12.9677	17.19	18.83	1.64	54.30	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1605512-007.03 doc	3.7245 ppm	0.0708 ppm	1.9000%	2016/06/12 00:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7745	37.7454	35.44	37.30	1.86	54.33	10:25
2	TOC	3.6745	36.7448	34.70	36.56	1.86	54.35	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	K1605698-001.02 doc	2.8908 ppm	0.0748 ppm	2.5900%	2016/06/12 00:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9436	29.4364	29.32	31.11	1.79	54.38	10:28
2	TOC	2.8379	28.3788	28.54	30.04	1.50	54.38	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2301 ppm (PASS)	0.0000 ppm	0%	2016/06/12 01:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2301	242.3013	186.64	188.07	1.43	54.42	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6704 ppm (PASS)	0.0000 ppm	0%	2016/06/12 01:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6704	6.7044	13.11	14.83	1.72	54.44	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	MB2	0.6968 ppm	0.0000 ppm	0.0000%	2016/06/12 01:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6968	6.9681	12.77	13.97	1.20	54.45	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7811 ppm (PASS)	0.0000 ppm	0%	2016/06/12 01:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	24.7811	247.8107	190.70	192.57	1.87	54.48	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1605698-001.02 ms/msd doc	28.6114 ppm	0.3233 ppm	1.1300%	2016/06/12 02:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.8400	288.4003	220.06	221.79	1.73	54.41	10:28
2	TOC	28.3828	283.8277	216.69	218.42	1.73	54.46	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1605749-001.02 doc	3.0833 ppm	0.1998 ppm	6.4800%	2016/06/12 02:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2245	32.2454	31.39	32.89	1.51	54.42	10:28
2	TOC	2.9420	29.4201	29.31	31.05	1.74	54.49	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1605749-001.02 ms/msd doc	28.5934 ppm	0.0667 ppm	0.2300%	2016/06/12 03:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.6406	286.4059	218.59	220.04	1.45	54.46	10:28
2	TOC	28.5462	285.4623	217.89	219.48	1.59	54.39	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1605750-001.03 doc	1.1319 ppm	0.1357 ppm	11.9800%	2016/06/12 03:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2278	12.2780	16.68	18.70	2.02	54.41	10:22
2	TOC	1.0360	10.3596	15.27	17.31	2.05	54.47	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC)	CAS_salt_010711	CAS_salt_010711

(v875) (v3) (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1605750-001.03 ms doc	26.5951 ppm	0.0000 ppm	0.0000%	2016/06/12 03:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.5951	265.9511	203.52	205.47	1.95	54.46	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1605750-002.03 doc	10.4605 ppm	0.1717 ppm	1.6400%	2016/06/12 04:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.5819	105.8195	85.58	87.08	1.50	54.47	10:25
2	TOC	10.3391	103.3906	83.79	85.35	1.56	54.48	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1605750-003.03 doc	10.2000 ppm	0.0100 ppm	0.1000%	2016/06/12 04:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.1930	101.9297	82.71	84.47	1.76	54.42	10:27
2	TOC	10.2071	102.0709	82.82	84.26	1.45	54.39	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1605750-004.03 doc	10.2670 ppm	0.0360 ppm	0.3500%	2016/06/12 05:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.2416	102.4158	83.07	84.64	1.57	54.38	10:25
2	TOC	10.2925	102.9249	83.45	85.09	1.65	54.38	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2819 ppm (PASS)	0.0000 ppm	0%	2016/06/12 05:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2819	242.8185	187.02	188.59	1.56	54.37	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6423 ppm (PASS)	0.0000 ppm	0%	2016/06/12 05:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6423	6.4233	12.90	14.83	1.92	54.43	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1605750-005.03 doc 2x	7.7170 ppm	0.0657 ppm	0.8500%	2016/06/12 06:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.7634	77.6340	64.82	66.72	1.90	54.38	10:26
2	TOC	7.6705	76.7054	64.13	66.01	1.88	54.40	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	RB	0.7272 ppm	0.1134 ppm	15.5900%	2016/06/12 06:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6470	6.4699	12.40	14.43	2.02	54.37	10:24
2	TOC	0.8073	8.0733	13.58	15.34	1.76	54.40	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC)	CAS_salt_010711	CAS_salt_010711

(v875) (v3) (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1605782-001.02 doc	2.4416 ppm	0.0293 ppm	1.2000%	2016/06/12 06:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4623	24.6234	25.77	27.79	2.01	54.38	10:27
2	TOC	2.4209	24.2093	25.47	27.23	1.76	54.35	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1605782-001.02 ms/msd doc	27.9535 ppm	0.2444 ppm	0.8700%	2016/06/12 07:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.1263	281.2630	214.80	216.52	1.72	54.41	10:24
2	TOC	27.7806	277.8063	212.26	214.51	2.26	54.38	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1605782-002.02 doc	2.2827 ppm	0.1991 ppm	8.7200%	2016/06/12 07:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4235	24.2351	25.49	27.06	1.58	54.34	10:24
2	TOC	2.1419	21.4193	23.41	25.46	2.05	54.34	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1605862-001.02 doc	2.5456 ppm	0.0253 ppm	1.0000%	2016/06/12 08:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5635	25.6349	26.52	28.54	2.03	54.34	10:25
2	TOC	2.5276	25.2765	26.25	28.23	1.97	54.38	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1605862-001.02 ms/msd doc	28.1697 ppm	0.1516 ppm	0.5400%	2016/06/12 08:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0625	280.6249	214.33	216.43	2.09	54.39	10:26
2	TOC	28.2769	282.7687	215.91	217.66	1.75	54.40	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1605862-002.02 doc	2.5982 ppm	0.1883 ppm	7.2500%	2016/06/12 09:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7313	27.3130	27.75	29.48	1.73	54.36	10:28
2	TOC	2.4651	24.6506	25.79	27.83	2.04	54.35	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1605862-003.02 doc	0.7385 ppm	0.0488 ppm	6.6000%	2016/06/12 09:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7730	7.7298	13.33	15.10	1.77	54.31	10:24
2	TOC	0.7040	7.0401	12.82	14.65	1.83	54.30	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	K1605465-001.05	4.1556 ppm	0.0353 ppm	0.8500%	2016/06/12 10:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1806	41.8062	38.43	40.34	1.91	54.28	10:28
2	TOC	4.1307	41.3066	38.06	40.03	1.97	54.25	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1065 ppm (PASS)	0.0000 ppm	0%	2016/06/12 10:41

Pos	Base Analysis	ID	Rep	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run

	Type		#							Time
B	TOC	25 ppm	1	24.1085	241.0848	185.74	187.67	1.93	54.21	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6627 ppm (PASS)	0.0000 ppm	0%	2016/06/12 10:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6627	6.6270	13.05	15.00	1.95	54.17	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	MB3	0.7044 ppm	0.0000 ppm	0.0000%	2016/06/12 11:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7044	7.0442	12.82	14.60	1.77	54.13	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.0724 ppm (PASS)	0.0000 ppm	0%	2016/06/12 11:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	25.0724	250.7243	192.84	194.75	1.91	54.07	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1605465-001.05 ms	30.3103 ppm	0.0000 ppm	0.0000%	2016/06/12 11:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.3103	303.1026	230.89	233.12	2.23	54.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1605465-002.05	4.5266 ppm	0.1687 ppm	3.7300%	2016/06/12 11:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.6459	46.4590	41.86	43.94	2.09	54.00	10:24
2	TOC	4.4074	44.0735	40.10	42.18	2.08	53.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1605465-003.05	5.3606 ppm	0.1757 ppm	3.2800%	2016/06/12 12:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4848	54.8481	48.04	50.03	1.99	53.88	10:30
2	TOC	5.2364	52.3635	46.20	48.23	2.02	53.85	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1605465-004.05	0.8052 ppm	0.0688 ppm	8.5500%	2016/06/12 12:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8539	8.5390	13.93	16.09	2.16	54.00	10:25
2	TOC	0.7566	7.5655	13.21	15.43	2.22	53.93	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1605465-005.05	4.8467 ppm	0.1018 ppm	2.1000%	2016/06/12 13:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.9187	49.1866	43.86	45.76	1.90	53.93	10:23

2	TOC	4.7747	47.7474	42.80	44.87	2.07	53.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1605465-006.05	2.6046 ppm	0.1689 ppm	6.4800%	2016/06/12 13:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7240	27.2397	27.70	29.39	1.69	53.91	10:24
2	TOC	2.4851	24.8515	25.94	28.21	2.27	54.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1605516-001.04	5.9056 ppm	0.1376 ppm	2.3300%	2016/06/12 14:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.0029	60.0290	51.85	53.59	1.74	53.97	10:26
2	TOC	5.8083	58.0834	50.42	52.53	2.11	54.12	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1605516-001.04 ms	31.7820 ppm	0.0000 ppm	0.0000%	2016/06/12 14:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	31.7820	317.8199	241.73	243.80	2.08	53.99	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4198 ppm (PASS)	0.0000 ppm	0%	2016/06/12 14:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4198	244.1979	188.04	190.07	2.03	54.09	10:27

Completion State	Success Action	Method	Calibration	STD Conc - Pos B

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6901 ppm (PASS)	0.0000 ppm	0%	2016/06/12 15:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6901	6.9012	13.26	15.19	1.94	53.96	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1605558-009.02 2x	16.7597 ppm	0.1241 ppm	0.7400%	2016/06/12 15:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.6720	166.7196	130.43	132.19	1.75	54.07	10:23
2	TOC	16.8475	168.4751	131.73	134.02	2.29	54.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1605558-009.02 ms 2x	44.0228 ppm	0.0000 ppm	0.0000%	2016/06/12 15:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	44.0228	440.2284	331.89	333.72	1.83	54.05	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	RB	1.3770 ppm	0.2644 ppm	19.2000%	2016/06/12 16:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5640	15.6396	19.16	21.02	1.86	54.11	10:27
2	TOC	1.1901	11.9006	16.40	18.34	1.94	54.27	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1605558-012.02 2x	17.6866 ppm	0.0722 ppm	0.4100%	2016/06/12 16:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	17.6355	176.3550	137.53	139.26	1.73	54.16	10:27
2	TOC	17.7376	177.3760	138.28	140.16	1.88	54.15	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1605558-015.02 2x	18.2494 ppm	0.3723 ppm	2.0400%	2016/06/12 17:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.5127	185.1270	143.99	145.65	1.66	54.33	10:30
2	TOC	17.9862	179.8619	140.11	142.02	1.91	54.21	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1605558-026.02 2x	36.6663 ppm	0.0940 ppm	0.2600%	2016/06/12 17:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	36.7328	367.3277	278.19	279.87	1.68	54.16	10:23
2	TOC	36.5999	365.9985	277.21	279.24	2.03	54.24	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	RB	1.8715 ppm	0.5224 ppm	27.9200%	2016/06/12 17:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2409	22.4090	24.14	25.83	1.69	54.29	10:24
2	TOC	1.5021	15.0205	18.70	20.52	1.82	54.15	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1605558-029.02 2x	41.1489 ppm	0.7688 ppm	1.8700%	2016/06/12 18:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	40.6053	406.0528	306.71	308.79	2.08	54.27	10:30
2	TOC	41.6925	416.9251	314.72	316.60	1.87	54.34	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1605558-032.02 2x	38.8380 ppm	0.0394 ppm	0.1000%	2016/06/12 18:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	38.8658	388.6582	293.90	295.60	1.70	54.22	10:27
2	TOC	38.8102	388.1016	293.49	295.39	1.90	54.33	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	K1605558-043.02	7.9518 ppm	0.4849 ppm	6.1000%	2016/06/12 19:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	NR 8.2947	82.9466	68.73	71.02	2.29	54.31	10:25
2	TOC	7.6089	76.0890	63.68	65.45	1.77	54.25	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9489 ppm (PASS)	0.0000 ppm	0%	2016/06/12 19:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9489	249.4888	191.93	193.82	1.89	54.34	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	1.2234 ppm (PASS)	0.0000 ppm	0%	2016/06/12 20:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	1.2234	12.2342	17.18	19.29	2.11	54.27	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	MB4	1.1184 ppm	0.0000 ppm	0.0000%	2016/06/12 20:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1184	11.1837	15.87	17.56	1.69	54.27	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.3308 ppm (PASS)	0.0000 ppm	0%	2016/06/12 20:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	25.3308	253.3080	194.75	196.81	2.06	54.34	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1605558-046.02	6.9352 ppm	0.0052 ppm	0.0700%	2016/06/12 20:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	MR 6.9316	69.3155	58.69	60.57	1.88	54.22	10:27
2	TOC	6.9389	69.3888	58.74	60.58	1.84	54.17	10:27

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1605558-049.02	6.9506 ppm	0.0098 ppm	0.1400%	2016/06/12 21:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.9436	69.4364	58.78	60.86	2.08	54.15	10:25
2	TOC	6.9575	69.5748	58.88	61.05	2.17	54.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1605627-006.06	5.6495 ppm	0.0269 ppm	0.4800%	2016/06/12 21:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.6685	56.6850	49.39	51.24	1.86	54.12	10:24
2	TOC	5.6305	56.3049	49.11	50.92	1.81	54.13	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	RB	0.8451 ppm	0.0158 ppm	1.8700%	2016/06/12 22:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8339	8.3394	13.78	15.79	2.01	54.12	10:27
2	TOC	0.8563	8.5634	13.94	15.85	1.91	54.13	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1605657-009.02	6.3004 ppm	0.0729 ppm	1.1600%	2016/06/12 22:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.3520	63.5196	54.42	56.34	1.92	54.13	10:25
2	TOC	6.2489	62.4891	53.66	55.87	2.20	54.15	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1605657-009.02 ms	31.9983 ppm	0.0000 ppm	0.0000%	2016/06/12 23:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	NA 31.9983	319.9827	243.32	245.34	2.02	54.17	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1605657-012.02	6.3736 ppm	0.0853 ppm	1.3400%	2016/06/12 23:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	NA 6.4340	64.3396	55.03	57.02	1.99	54.17	10:30
2	TOC	6.3133	63.1327	54.14	56.11	1.97	54.18	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1605657-015.02	6.1098 ppm	0.0337 ppm	0.5500%	2016/06/12 23:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1336	61.3364	52.81	54.95	2.14	54.20	10:29
2	TOC	NA 6.0860	60.8599	52.46	54.52	2.05	54.21	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2884 ppm (PASS)	0.0000 ppm	0%	2016/06/13 00:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2884	242.8837	187.07	189.13	2.06	54.21	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7723 ppm	0.0000 ppm	0%	2016/06/13 00:28

						(PASS)				

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7723	7.7226	13.86	15.44	1.58	54.23	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1605695-001.14	2.5359 ppm	0.0784 ppm	3.0900%	2016/06/13 00:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5913	25.9132	26.72	28.78	2.06	54.25	10:26
2	TOC	2.4804	24.8040	25.91	28.10	2.20	54.25	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1605695-001.14 ms	26.5944 ppm	0.0000 ppm	0.0000%	2016/06/13 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.5944	265.9443	203.52	205.43	1.92	54.27	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1605695-002.12 4x	0.9374 ppm	0.0636 ppm	6.7800%	2016/06/13 01:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9823	9.8233	14.87	16.90	2.03	54.29	10:26
2	TOC	0.8925	8.9246	14.21	16.10	1.89	54.31	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1605695-003.14	1.0305 ppm	0.0667 ppm	6.4700%	2016/06/13 01:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0776	10.7764	15.57	17.35	1.77	54.30	10:28

2	TOC	0.9833	9.8328	14.88	16.57	1.69	54.31	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1605879-001.01	1.5271 ppm	0.0642 ppm	4.2100%	2016/06/13 02:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5725	15.7252	19.22	21.15	1.93	54.33	10:30
2	TOC	1.4817	14.8169	18.55	20.34	1.79	54.34	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1605916-002.02	1.4301 ppm	0.1094 ppm	7.6500%	2016/06/13 02:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5075	15.0748	18.74	20.35	1.61	54.36	10:26
2	TOC	1.3527	13.5271	17.60	19.56	1.96	54.37	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1605916-003.02	1.0360 ppm	0.0370 ppm	3.5700%	2016/06/13 03:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0622	10.6217	15.46	17.32	1.86	54.38	10:25
2	TOC	1.0099	10.0989	15.08	16.77	1.70	54.39	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6366 (IC) (v875)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9132 ppm (PASS)	0.0000 ppm	0%	2016/06/13 03:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9132	239.1324	184.31	186.15	1.84	54.41	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7205 ppm (PASS)	0.0000 ppm	0%	2016/06/13 03:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7205	7.2053	13.48	15.07	1.59	54.43	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v874	1.7143	0.6380	0.0000	0.0000	0.0000	2016/06/10 22:46	Fusion1 (Fusion1)
v875	1.4050	0.4960	0.0000	0.0000	0.0000	2016/06/11 15:48	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v14

Calibration curve formula: TOC: y = 7.366x + 8.173

Ver Creation: 2016/02/29 21:15

r^2 value: TOC: r^2 = 0.99958

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type: TOC

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	10.4880	0.0000		2016/02/29 19:49
0.500 ppm	13.1800	0.5000		2016/02/29 20:03
1.0 ppm	16.6270	1.0000		2016/02/29 20:17

5.0 ppm	45.3570	5.0000		2016/02/29 20:31
10 ppm	75.7540	10.0000		2016/02/29 20:46
25 ppm	192.0010	25.0000		2016/02/29 20:59
50 ppm	377.7470	50.0000		2016/02/29 21:13

Methods

Name: CAS_salt_010711 (TOC)

Version: v3
Operator: Gen Chem Lab (Fusion1)
Ver Creation: 2013/02/04 11:45
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	7
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	7
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2016/06/13 04:14

Work Request # Original (K5950) K5995 K5983 K6174 K5768 K5914 K6159 K6042 K6048

Tier: IV I II II I III IV II II

Date Analyzed: 6.13.16

K6103 K6195 K6149 K5935 K5987 K6237 K6238
II I II II II II II

Analyst: B.H

K6166 K6162 K6223 K6386 K6404 K5976
II II I II II II

Analysis: TOC/POC

K6156 K6228
II II

Run# 500689
500689
500692
500693

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: 10.) 6149 samples with high RPD are due to sample matrix. Samples are General Atomics. 6149 -8 Raised MRL due to sample matrix. All other samples with high RPD are due to concentrations < 5 x MRL.
6238 -1 Raised MRL due to sample matrix O.K. per P.C. 6238-1MS has low recovery due to matrix interference. O.K to report per P.C.
5768 Batch w 5995, 6159 batch with 5914, 6237 Batch w 6149, 6162 Batch w 6166
17.) 5950 due 6.14

Final Approved by: [signature] Date: 6/16/16

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500687 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605750-002	Carbon, Total Organic	N/A		Water	10.07 mg/L	10 ml	10.1 mg/L	1	0.07	0.50			6/13/16 16:00	N	IV
K1605750-003	Carbon, Total Organic	N/A		Water	10.30 mg/L	10 ml	10.3 mg/L	1	0.07	0.50			6/13/16 16:00	N	IV
K1605750-004	Carbon, Total Organic	N/A		Water	10.08 mg/L	10 ml	10.1 mg/L	1	0.07	0.50			6/13/16 16:00	N	IV
K1605750-005	Carbon, Total Organic	N/A		Water	7.48 mg/L	10 ml	7.48 mg/L	1	0.07	0.50			6/13/16 16:00	N	IV
K1605768-001	Carbon, Total Organic	N/A		Water	0.48 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
K1605768-002	Carbon, Total Organic	N/A		Water	0.37 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
K1605768-003	Carbon, Total Organic	N/A		Water	1.27 mg/L	10 ml	1.27 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1605914-032	Carbon, Total Organic	N/A		Water	0.15 mg/L	10 ml	0.15 mg/L J	1	0.07	0.50			6/13/16 16:00	N	IV
K1605975-001	Carbon, Total Organic	N/A		Water	1.51 mg/L	10 ml	1.51 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1605975-002	Carbon, Total Organic	N/A		Water	1.32 mg/L	10 ml	1.32 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1605983-001	Carbon, Total Organic	N/A		Water	0.09 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
K1606042-001	Carbon, Total Organic	N/A		Drinking Water	0.70 mg/L	10 ml	0.70 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606048-001	Carbon, Total Organic	N/A		Drinking Water	1.25 mg/L	10 ml	1.25 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606048-002	Carbon, Total Organic	N/A		Drinking Water	1.32 mg/L	10 ml	1.32 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606048-003	Carbon, Total Organic	N/A		Drinking Water	1.16 mg/L	10 ml	1.16 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606103-002	Carbon, Total Organic	N/A		Drinking Water	0.64 mg/L	10 ml	0.64 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1606159-001	Carbon, Total Organic	N/A		Water	0.25 mg/L	10 ml	0.25 mg/L J	1	0.07	0.50			6/13/16 16:00	N	IV
K1606159-002	Carbon, Total Organic	N/A		Water	0.26 mg/L	10 ml	0.26 mg/L J	1	0.07	0.50			6/13/16 16:00	N	IV
K1606174-001	Carbon, Total Organic	N/A		Water	2.47 mg/L	10 ml	2.47 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606195-002	Carbon, Total Organic	N/A		Drinking Water	0.78 mg/L	10 ml	0.78 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
KQ1606456-01	Carbon, Total Organic	MB		Water	-0.08 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	IV
KQ1606456-02	Carbon, Total Organic	LCS		Water	24.22 mg/L	10 ml	24.2 mg/L	1	0.07	0.50	101		6/13/16 16:00	N	IV
KQ1606456-03	Carbon, Total Organic	CCV		Water	24.08 mg/L	10 ml	24.1 mg/L	1					6/13/16 16:00	N	IV
KQ1606456-04	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 ml	24.1 mg/L	1					6/13/16 16:00	N	IV
KQ1606456-05	Carbon, Total Organic	CCV		Water	23.67 mg/L	10 ml	23.7 mg/L	1					6/13/16 16:00	N	IV
KQ1606456-06	Carbon, Total Organic	CCV		Water	23.60 mg/L	10 ml	23.6 mg/L	1					6/13/16 16:00	N	IV
KQ1606456-07	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	IV
KQ1606456-08	Carbon, Total Organic	CCB		Water	5.19900000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	IV
KQ1606456-09	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	IV
KQ1606456-10	Carbon, Total Organic	CCB		Water	0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	IV
KQ1606456-11	Carbon, Total Organic	MS	K1605750-002	Water	36.37 mg/L	10 ml	36.4 mg/L	1	0.07	0.50	105		6/13/16 16:00	N	IV
KQ1606456-12	Carbon, Total Organic	DUP	K1605750-002	Water	9.95 mg/L	10 ml	9.95 mg/L	1	0.07	0.50		1	6/13/16 16:00	N	IV
KQ1606456-13	Carbon, Total Organic	DUP	K1605750-003	Water	9.72 mg/L	10 ml	9.72 mg/L	1	0.07	0.50		6	6/13/16 16:00	N	IV
KQ1606456-14	Carbon, Total Organic	DUP	K1605750-004	Water	9.82 mg/L	10 ml	9.82 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	IV

* indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500687 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606456-15	Carbon, Total Organic	DUP	K1605750-005	Water	7.26 mg/L	10 ml	7.26 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	IV
KQ1606456-16	Carbon, Total Organic	MS	K1605975-001	Water	26.97 mg/L	10 ml	27.0 mg/L	1	0.07	0.50	102		6/13/16 16:00	N	I
KQ1606456-17	Carbon, Total Organic	DUP	K1605975-001	Water	1.48 mg/L	10 ml	1.48 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	I
KQ1606456-18	Carbon, Total Organic	DUP	K1605975-002	Water	1.24 mg/L	10 ml	1.24 mg/L	1	0.07	0.50		6	6/13/16 16:00	N	I
KQ1606456-19	Carbon, Total Organic	DUP	K1605983-001	Water	0.09 mg/L	10 ml	0.09 mg/L J	1	0.07	0.50		NC	6/13/16 16:00	N	II
KQ1606456-20	Carbon, Total Organic	MS	K1606174-001	Water	27.43 mg/L	10 ml	27.4 mg/L	1	0.07	0.50	100		6/13/16 16:00	N	II
KQ1606456-21	Carbon, Total Organic	DUP	K1606174-001	Water	2.36 mg/L	10 ml	2.36 mg/L	1	0.07	0.50		4	6/13/16 16:00	N	II
KQ1606456-22	Carbon, Total Organic	DUP	K1605768-001	Water	0.46 mg/L	10 ml	0.46 mg/L J	1	0.07	0.50		NC	6/13/16 16:00	N	I
KQ1606456-23	Carbon, Total Organic	DUP	K1605768-002	Water	0.37 mg/L	10 ml	0.37 mg/L J	1	0.07	0.50		NC	6/13/16 16:00	N	I
KQ1606456-24	Carbon, Total Organic	DUP	K1605768-003	Water	1.31 mg/L	10 ml	1.31 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	I
KQ1606456-25	Carbon, Total Organic	MS	K1605914-032	Water	24.62 mg/L	10 ml	24.6 mg/L	1	0.07	0.50	98		6/13/16 16:00	N	IV
KQ1606456-26	Carbon, Total Organic	DUP	K1605914-032	Water	0.11 mg/L	10 ml	0.11 mg/L J	1	0.07	0.50		26*	6/13/16 16:00	N	IV
KQ1606456-27	Carbon, Total Organic	DUP	K1606159-001	Water	0.13 mg/L	10 ml	0.13 mg/L J	1	0.07	0.50		61*	6/13/16 16:00	N	IV
KQ1606456-28	Carbon, Total Organic	DUP	K1606159-002	Water	0.16 mg/L	10 ml	0.16 mg/L J	1	0.07	0.50		48*	6/13/16 16:00	N	IV
KQ1606456-29	Carbon, Total Organic	DUP	K1606042-001	Drinking Water	0.65 mg/L	10 ml	0.65 mg/L	1	0.07	0.50		7	6/13/16 16:00	N	II
KQ1606456-30	Carbon, Total Organic	MS	K1606048-001	Drinking Water	26.51 mg/L	10 ml	26.5 mg/L	1	0.07	0.50	101		6/13/16 16:00	N	II
KQ1606456-31	Carbon, Total Organic	DUP	K1606048-001	Drinking Water	1.14 mg/L	10 ml	1.14 mg/L	1	0.07	0.50		9	6/13/16 16:00	N	II
KQ1606456-32	Carbon, Total Organic	DUP	K1606048-002	Drinking Water	1.23 mg/L	10 ml	1.23 mg/L	1	0.07	0.50		7	6/13/16 16:00	N	II
KQ1606456-33	Carbon, Total Organic	DUP	K1606048-003	Drinking Water	1.16 mg/L	10 ml	1.16 mg/L	1	0.07	0.50		<1	6/13/16 16:00	N	II
KQ1606456-34	Carbon, Total Organic	DUP	K1606103-002	Drinking Water	0.54 mg/L	10 ml	0.54 mg/L	1	0.07	0.50		18*	6/13/16 16:00	N	I
KQ1606456-35	Carbon, Total Organic	DUP	K1606195-002	Drinking Water	0.67 mg/L	10 ml	0.67 mg/L	1	0.07	0.50		16*	6/13/16 16:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500689 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605935-001	Carbon, Total Organic	N/A		Water	2.35 mg/L	10 ml	2.35 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1605935-002	Carbon, Total Organic	N/A		Water	26.91 mg/L	10 ml	26.9 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1605935-003	Carbon, Total Organic	N/A		Water	32.10 mg/L	10 ml	32.1 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1605935-004	Carbon, Total Organic	N/A		Water	33.61 mg/L	10 ml	67.2 mg/L	2	0.2	1.0			6/13/16 16:00	N	V
K1605935-005	Carbon, Total Organic	N/A		Water	8.13 mg/L	10 ml	81.3 mg/L	10	0.7	5.0			6/13/16 16:00	N	V
K1605987-007	Carbon, Total Organic	N/A		Water	5.46 mg/L	10 ml	5.46 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606149-005	Carbon, Total Organic	N/A		Water	0.35 mg/L	10 ml	9 mg/L J	25	2	13			6/13/16 16:00	N	II
K1606149-007	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 ml	1.7 mg/L	2	0.2	1.0			6/13/16 16:00	Y	II
K1606149-008	Carbon, Total Organic	N/A		Water	0.39 mg/L	10 ml	3.9 mg/L J	10	0.7	5.0			6/13/16 16:00	N	II
K1606160-001	Carbon, Total Organic	N/A		Water	3.06 mg/L	10 ml	3.06 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606160-002	Carbon, Total Organic	N/A		Water	6.78 mg/L	10 ml	13.6 mg/L	2	0.2	1.0			6/13/16 16:00	N	II
K1606160-003	Carbon, Total Organic	N/A		Water	9.79 mg/L	10 ml	19.6 mg/L	2	0.2	1.0			6/13/16 16:00	N	II
K1606160-004	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 ml	0.85 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606160-005	Carbon, Total Organic	N/A		Water	3.07 mg/L	10 ml	3.07 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606162-001	Carbon, Total Organic	N/A		Water	3.20 mg/L	10 ml	3.20 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606162-002	Carbon, Total Organic	N/A		Water	1.03 mg/L	10 ml	1.03 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606162-003	Carbon, Total Organic	N/A		Water	7.96 mg/L	10 ml	7.96 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606162-004	Carbon, Total Organic	N/A		Water	0.27 mg/L	10 ml	0.27 mg/L J	1	0.07	0.50			6/13/16 16:00	N	II
K1606237-004	Carbon, Total Organic	N/A		Water	1.27 mg/L	10 ml	1.27 mg/L	1	0.07	0.50			6/13/16 16:00	N	II
K1606238-001	Carbon, Total Organic	N/A		Water	0.20 mg/L	10 ml	2.0 mg/L J	10	0.7	5.0			6/13/16 16:00	N	II
KQ1606457-01	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
KQ1606457-02	Carbon, Total Organic	LCS		Water	23.93 mg/L	10 ml	23.9 mg/L	1	0.07	0.50	100		6/13/16 16:00	N	II
KQ1606457-03	Carbon, Total Organic	CCV		Water	23.60 mg/L	10 ml	23.6 mg/L	1					6/13/16 16:00	N	II
KQ1606457-04	Carbon, Total Organic	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1					6/13/16 16:00	N	II
KQ1606457-05	Carbon, Total Organic	CCV		Water	23.80 mg/L	10 ml	23.8 mg/L	1					6/13/16 16:00	N	II
KQ1606457-06	Carbon, Total Organic	CCV		Water	23.77 mg/L	10 ml	23.8 mg/L	1					6/13/16 16:00	N	II
KQ1606457-07	Carbon, Total Organic	CCB		Water	0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
KQ1606457-08	Carbon, Total Organic	CCB		Water	3.1990000000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
KQ1606457-09	Carbon, Total Organic	CCB		Water	4.4190000000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
KQ1606457-10	Carbon, Total Organic	CCB		Water	3.9900000000000005E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	II
KQ1606457-11	Carbon, Total Organic	DUP	K1606149-005	Water	0.40 mg/L	10 ml	10 mg/L J	25	2	13		14*	6/13/16 16:00	N	II
KQ1606457-12	Carbon, Total Organic	MS	K1606149-007	Water	22.34 mg/L	10 ml	44.7 mg/L	2	0.2	1.0	86		6/13/16 16:00	N	II
KQ1606457-13	Carbon, Total Organic	DUP	K1606149-007	Water	0.81 mg/L	10 ml	1.6 mg/L	2	0.2	1.0		6	6/13/16 16:00	N	II
KQ1606457-14	Carbon, Total Organic	DUP	K1606149-008	Water	0.27 mg/L	10 ml	2.7 mg/L J	10	0.7	5.0		35*	6/13/16 16:00	N	II
KQ1606457-15	Carbon, Total Organic	MS	K1605935-001	Water	27.68 mg/L	10 ml	27.7 mg/L	1	0.07	0.50	101		6/13/16 16:00	N	V
KQ1606457-16	Carbon, Total Organic	DUP	K1605935-001	Water	2.22 mg/L	10 ml	2.22 mg/L	1	0.07	0.50		6	6/13/16 16:00	N	V

‡ indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500689 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606457-17	Carbon, Total Organic	DUP	K1605935-002	Water	26.74 mg/L	10 ml	26.7 mg/L	1	0.07	0.50		<1	6/13/16 16:00	N	V
KQ1606457-18	Carbon, Total Organic	DUP	K1605935-003	Water	31.46 mg/L	10 ml	31.5 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	V
KQ1606457-19	Carbon, Total Organic	DUP	K1605935-004	Water	33.34 mg/L	10 ml	66.7 mg/L	2	0.2	1.0		<1	6/13/16 16:00	N	V
KQ1606457-20	Carbon, Total Organic	DUP	K1605935-005	Water	8.03 mg/L	10 ml	80.3 mg/L	10	0.7	5.0		1	6/13/16 16:00	N	V
KQ1606457-21	Carbon, Total Organic	MS	K1605987-007	Water	31.78 mg/L	10 ml	31.8 mg/L	1	0.07	0.50	105		6/13/16 16:00	N	II
KQ1606457-22	Carbon, Total Organic	DUP	K1605987-007	Water	5.33 mg/L	10 ml	5.33 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	II
KQ1606457-23	Carbon, Total Organic	DUP	K1606237-004	Water	1.07 mg/L	10 ml	1.07 mg/L	1	0.07	0.50		17*	6/13/16 16:00	N	II
KQ1606457-24	Carbon, Total Organic	MS	K1606238-001	Water	19.83 mg/L	10 ml	198 mg/L	10	0.7	5.0	78*		6/13/16 16:00	N	II
KQ1606457-25	Carbon, Total Organic	DUP	K1606238-001	Water	0.06 mg/L	10 ml	5.0 mg/L U	10	0.7	5.0		NC	6/13/16 16:00	N	II
KQ1606457-26	Carbon, Total Organic	MS	K1606160-001	Water	29.48 mg/L	10 ml	29.5 mg/L	1	0.07	0.50	106		6/13/16 16:00	N	II
KQ1606457-27	Carbon, Total Organic	DUP	K1606160-001	Water	2.90 mg/L	10 ml	2.90 mg/L	1	0.07	0.50		5	6/13/16 16:00	N	II
KQ1606457-28	Carbon, Total Organic	DUP	K1606160-002	Water	6.78 mg/L	10 ml	13.6 mg/L	2	0.2	1.0		<1	6/13/16 16:00	N	II
KQ1606457-29	Carbon, Total Organic	DUP	K1606160-003	Water	9.59 mg/L	10 ml	19.2 mg/L	2	0.2	1.0		2	6/13/16 16:00	N	II
KQ1606457-30	Carbon, Total Organic	DUP	K1606160-004	Water	0.79 mg/L	10 ml	0.79 mg/L	1	0.07	0.50		7	6/13/16 16:00	N	II
KQ1606457-31	Carbon, Total Organic	DUP	K1606160-005	Water	3.04 mg/L	10 ml	3.04 mg/L	1	0.07	0.50		1	6/13/16 16:00	N	II
KQ1606457-32	Carbon, Total Organic	DUP	K1606162-001	Water	3.10 mg/L	10 ml	3.10 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	II
KQ1606457-33	Carbon, Total Organic	DUP	K1606162-002	Water	0.91 mg/L	10 ml	0.91 mg/L	1	0.07	0.50		12*	6/13/16 16:00	N	II
KQ1606457-34	Carbon, Total Organic	DUP	K1606162-003	Water	7.79 mg/L	10 ml	7.79 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	II
KQ1606457-35	Carbon, Total Organic	DUP	K1606162-004	Water	0.26 mg/L	10 ml	0.25 mg/L J	1	0.07	0.50		6	6/13/16 16:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500692 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1606223-001	Carbon, Total Organic	N/A		Water	1.52 mg/L	10 ml	1.52 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1606223-002	Carbon, Total Organic	N/A		Water	1.73 mg/L	10 ml	1.73 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1606223-003	Carbon, Total Organic	N/A		Water	12.73 mg/L	10 ml	12.7 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1606223-004	Carbon, Total Organic	N/A		Water	6.40 mg/L	10 ml	6.40 mg/L	1	0.07	0.50			6/13/16 16:00	N	I
K1606386-002	Carbon, Total Organic	N/A		Water	0.48 mg/L	10 ml	0.48 mg/L J	1	0.07	0.50			6/13/16 16:00	N	II
K1606386-008.R01	Carbon, Total Organic	N/A		Water	0.39 mg/L	10 ml	2.0 mg/L J	5	0.4	2.5			6/13/16 16:00	N	II
KQ1606459-01	Carbon, Total Organic	MB		Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
KQ1606459-02	Carbon, Total Organic	LCS		Water	24.05 mg/L	10 ml	24.1 mg/L	1	0.07	0.50	100		6/13/16 16:00	N	I
KQ1606459-03	Carbon, Total Organic	CCV		Water	23.80 mg/L	10 ml	23.8 mg/L	1					6/13/16 16:00	N	I
KQ1606459-04	Carbon, Total Organic	CCV		Water	23.77 mg/L	10 ml	23.8 mg/L	1					6/13/16 16:00	N	I
KQ1606459-05	Carbon, Total Organic	CCV		Water	23.59 mg/L	10 ml	23.6 mg/L	1					6/13/16 16:00	N	I
KQ1606459-06	Carbon, Total Organic	CCB		Water	4.41900000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
KQ1606459-07	Carbon, Total Organic	CCB		Water	3.99000000000005E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
KQ1606459-08	Carbon, Total Organic	CCB		Water	1.68900000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	I
KQ1606459-09	Carbon, Total Organic	MS	K1606223-001	Water	26.77 mg/L	10 ml	26.8 mg/L	1	0.07	0.50	101		6/13/16 16:00	N	I
KQ1606459-10	Carbon, Total Organic	DUP	K1606223-001	Water	1.42 mg/L	10 ml	1.42 mg/L	1	0.07	0.50		7	6/13/16 16:00	N	I
KQ1606459-11	Carbon, Total Organic	DUP	K1606223-002	Water	1.73 mg/L	10 ml	1.73 mg/L	1	0.07	0.50		<1	6/13/16 16:00	N	I
KQ1606459-12	Carbon, Total Organic	DUP	K1606223-003	Water	12.48 mg/L	10 ml	12.5 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	I
KQ1606459-13	Carbon, Total Organic	DUP	K1606223-004	Water	6.27 mg/L	10 ml	6.27 mg/L	1	0.07	0.50		2	6/13/16 16:00	N	I
KQ1606459-14	Carbon, Total Organic	MS	K1606386-002	Water	25.36 mg/L	10 ml	25.4 mg/L	1	0.07	0.50	100		6/13/16 16:00	N	II
KQ1606459-15	Carbon, Total Organic	DUP	K1606386-002	Water	0.45 mg/L	10 ml	0.45 mg/L J	1	0.07	0.50		6	6/13/16 16:00	N	II
KQ1606459-16	Carbon, Total Organic	DUP	K1606386-008	Water	0.18 mg/L	10 ml	0.9 mg/L J	5	0.4	2.5		74*	6/13/16 16:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1		0.7207	-0.7207	-0.72071	<0.5	
2	CCV1	1	24.800	0.7207	24.0791	24.07909	24.1	%Rec=96
3	CCB1	1	0.639	0.7207	-0.0822	-0.08221	<0.5	
4	MB1	1	0.638	0.7207	-0.0831	-0.08311	<0.5	
5	LCS1	1	24.944	0.7207	24.2234	24.22339	24.2	
6	ics	1	1.041	0.7207	0.3198	0.31979	<0.5	
7	k1605750-002	1	10.793	0.7207	10.0721	10.07209	10.1	
8	5750-2d	1	10.670	0.7207	9.9497	9.94969	10	
9	5750-2ms	1	37.091	0.7207	36.3698	36.36979	36	
10	k1605750-003	1	11.016	0.7207	10.2956	10.29559	10.3	
11	5750-3d	1	10.436	0.7207	9.7155	9.71549	9.7	
12	k1605750-004	1	10.801	0.7207	10.0801	10.08009	10	
13	5750-4d	1	10.537	0.7207	9.8165	9.81649	9.8	
14	k1605750-005	1	8.198	0.7207	7.4777	7.47769	7.5	
15	5750-5d	1	7.977	0.7207	7.2564	7.25639	7.3	
16	k1605975-001	1	2.234	0.7207	1.5128	1.51279	1.5	
17	5975-1d	1	2.200	0.7207	1.4791	1.47909	1.5	
18	5975-1ms	1	27.686	0.7207	26.9653	26.96529	27.0	
19	ccv2	1	24.842	0.7207	24.1217	24.12169	24.1	%rec=96
20	ccb2	1	0.773	0.7207	0.0520	0.05199	<0.5	
21	k1605975-002	1	2.039	0.7207	1.3186	1.31859	1.3	
22	5975-2d	1	1.959	0.7207	1.2382	1.23819	1.2	
23	k1605983-001	1	0.816	0.7207	0.0949	0.09489	<0.5	
24	5983-1d	1	0.813	0.7207	0.0923	0.09229	<0.5	
25	k1606174-001	1	3.190	0.7207	2.4694	2.46939	2.5	

ICAL Date 10/13/15 ICAL ID#:11-GEN-05-43I

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-48K)

CCV = 25.0 ppm (Ref.#11-GEN-05-48O)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-49C)

ics tv = 25.0mg/L %Rec=1

		date	time
Analyzed By:	Date Analyzed	6/13/2016	16:00:00
Reviewed By:	Date Reviewed	6/16/16	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	6174-1d	1	3.082	0.7207	2.3608	2.36079	2.36	
27	6174-1ms	1	28.150	0.7207	27.4288	27.42879	27.4	
28	k1605768-001	1	1.202	0.7207	0.4815	0.48149	<0.5	
29	5768-1d	1	1.180	0.7207	0.4593	0.45929	<0.5	
30	k1605768-002	1	1.092	0.7207	0.3708	0.37079	<0.5	
31	5768-2d	1	1.091	0.7207	0.3703	0.37029	<0.5	
32	k1605768-003	1	1.992	0.7207	1.2710	1.27099	1.27	
33	5768-3d	1	2.030	0.7207	1.3091	1.30909	1.3	
34	k1605914-032	1	0.866	0.7207	0.1456	0.14559	<0.5	
35	5914-32d	1	0.833	0.7207	0.1120	0.11199	<0.5	
36	5914-32ms	1	25.341	0.7207	24.6199	24.61989	24.62	
37	k1606159-001	1	0.967	0.7207	0.2464	0.24639	<0.5	
38	6159-1d	1	0.852	0.7207	0.1308	0.13079	<0.5	
39	ccv3	1	24.394	0.7207	23.6737	23.67369	23.67	%Rec=95
40	ccb3	1	0.702	0.7207	-0.0184	-0.01841	<0.5	
41	mb2	1	0.714	0.7207	-0.0066	-0.00661	<0.5	
42	lcs2	1	24.774	0.7207	24.0529	24.05289	24.05	
43	k1606159-002	1	0.979	0.7207	0.2584	0.25839	<0.5	
44	6159-2d	1	0.879	0.7207	0.1581	0.15809	<0.5	
45	k1606042-001	1	1.419	0.7207	0.6987	0.69869	0.70	
46	6042-1d	1	1.375	0.7207	0.6542	0.65419	0.65	
47	k1606048-001	1	1.967	0.7207	1.2462	1.24619	1.25	
48	6048-1d	1	1.864	0.7207	1.1436	1.14359	1.14	
49	6048-1ms	1	27.230	0.7207	26.5094	26.50939	26.51	
50	k1606048-002	1	2.043	0.7207	1.3225	1.32249	1.32	

Analyzed By: B. Watkins	Date Analyzed 6.13.16
Reviewed By: V	Date Reviewed 6/16/16

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	6048-2d	1	1.950	0.7207	1.2291	1.22909	1.23	
52	k1606048-003	1	1.884	0.7207	1.1633	1.16329	1.2	
53	6048-3d	1	1.881	0.7207	1.1598	1.15979	1.2	
54	k1606103-002	1	1.365	0.7207	0.6442	0.64419	0.6	
55	6103-2d	1	1.261	0.7207	0.5401	0.54009	0.5	
56	k1606195-002	1	1.505	0.7207	0.7841	0.78409	0.8	
57	6195-2d	1	1.389	0.7207	0.6680	0.66799	0.7	
58	ccv4	1	24.320	0.7207	23.5993	23.59929	23.6	%Rec=94
59	ccb4	1	0.738	0.7207	0.0172	0.01719	<0.5	
60	k1606149-005	25	1.069	0.7207	0.3483	8.70725	8.7	
61	6149-5d	25	1.121	0.7207	0.4005	10.01225	10.0	
62	k1606149-007	2	1.576	0.7207	0.8548	1.70958	1.7	
63	6149-7d	2	1.528	0.7207	0.8074	1.61478	1.6	
64	6149-7ms	2	23.057	0.7207	22.3367	44.67338	44.7	
65	k1606149-008	10	1.108	0.7207	0.3875	3.8749	3.9	
66	6149-8d	10	0.994	0.7207	0.2728	2.7279	2.7	
67	k1605935-001	1	3.072	0.7207	2.3515	2.35149	2.4	
68	5935-1d	1	2.946	0.7207	2.2249	2.22489	2.2	
69	5935-1ms	1	28.403	0.7207	27.6827	27.68269	27.7	
70	k1605935-002	1	27.631	0.7207	26.9103	26.91029	26.9	
71	5935-2d	1	27.462	0.7207	26.7412	26.74119	26.7	
72	k1605935-003	1	32.825	0.7207	32.1041	32.10409	32.1	
73	5935-3d	1	32.177	0.7207	31.4558	31.45579	31.5	
74	k1605935-004	2	34.331	0.7207	33.6098	67.21958	67.2	
75	5935-4d	2	34.059	0.7207	33.3384	66.67678	66.7	

Analyzed By: B. Hitter	Date Analyzed 6.13.16
Reviewed By:	Date Reviewed 6/16/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
76	ccv5	1	24.312	0.7207	23.5912	23.59119	23.6	%Rec=94
77	ccb5	1	0.753	0.7207	0.0320	0.03199	<0.5	
78	mb3	1	0.720	0.7207	-0.0011	-0.00111	<0.5	
79	lcs3	1	24.649	0.7207	23.9279	23.92789	23.93	
80	k1605935-005	10	8.855	0.7207	8.1339	81.3389	81.34	
81	5935-5d	10	8.755	0.7207	8.0347	80.3469	80.3	
82	k1605987-007	1	6.184	0.7207	5.4631	5.46309	5.46	
83	5987-7d	1	6.052	0.7207	5.3312	5.33119	5.33	
84	5987-7ms	1	32.506	0.7207	31.7848	31.78479	31.78	
85	k1606237-004	1	1.990	0.7207	1.2691	1.26909	1.27	
86	6237-4d	1	1.795	0.7207	1.0738	1.07379	1.07	
87	k1606238-001	10	0.924	0.7207	0.2029	2.0289	2.0	
88	6238-1d	10	0.781	0.7207	0.0607	0.6069	0.6	
89	6238-1ms	10	20.546	0.7207	19.8251	198.2509	198.3	
90	k1606160-001	1	3.777	0.7207	3.0563	3.05629	3.1	
91	6160-1d	1	3.618	0.7207	2.8970	2.89699	2.9	
92	6160-1ms	1	30.200	0.7207	29.4789	29.47889	29.5	
93	ccv6	1	24.520	0.7207	23.7989	23.79889	23.8	%Rec=95
94	ccb6	1	0.765	0.7207	0.0442	0.04419	<0.5	
95		1		0.7207	-0.7207	-0.72071	<0.5	
96		1		0.7207	-0.7207	-0.72071	<0.5	
97		1		0.7207	-0.7207	-0.72071	<0.5	
98		1		0.7207	-0.7207	-0.72071	<0.5	
99		1		0.7207	-0.7207	-0.72071	<0.5	
100		1		0.7207	-0.7207	-0.72071	<0.5	

Analyzed By: B. Watkins	Date Analyzed 6.13.16
Reviewed By:	Date Reviewed 6/16/16

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1		0.7207	-0.7207	-0.72071	<0.5	
2	ccv6	1	24.520	0.7207	23.7989	23.79889	23.8	%Rec=95
3	ccb6	1	0.765	0.7207	0.0442	0.04419	<0.5	
4	k1606160-002	2	7.499	0.7207	6.7782	13.55638	13.6	
5	6160-2d	2	7.502	0.7207	6.7810	13.56198	13.6	
6	k1606160-003	2	10.512	0.7207	9.7908	19.58158	19.6	
7	6160-3d	2	10.307	0.7207	9.5863	19.17258	19.2	
8	k1606160-004	1	1.566	0.7207	0.8455	0.84549	1	
9	6160-4d	1	1.513	0.7207	0.7922	0.79219	1	
10	k1606160-005	1	3.788	0.7207	3.0670	3.06699	3.1	
11	6160-5	1	3.756	0.7207	3.0351	3.03509	3.0	
12	k1606162-001	1	3.924	0.7207	3.2037	3.20369	3	
13	6162-1d	1	3.821	0.7207	3.1006	3.10059	3.1	
14	k1606162-002	1	1.746	0.7207	1.0253	1.02529	1.0	
15	6162-2d	1	1.628	0.7207	0.9075	0.90749	0.9	
16	k1606162-003	1	8.676	0.7207	7.9554	7.95539	8.0	
17	6162-3d	1	8.511	0.7207	7.7907	7.79069	7.8	
18	k1606162-004	1	0.991	0.7207	0.2703	0.27029	<0.5	
19	6162-4d	1	0.976	0.7207	0.2550	0.25499	<0.5	
20	k1606223-001	1	2.245	0.7207	1.5247	1.52469	1.5	
21	6223-1d	1	2.138	0.7207	1.4172	1.41719	1.4	
22	6223-1ms	1	27.495	0.7207	26.7738	26.77379	26.8	
23	ccv7	1	24.492	0.7207	23.7717	23.77169	23.8	%Rec=95
24	ccb7	1	0.725	0.7207	0.0040	0.00399	<0.5	
25	k1606223-002	1	2.449	0.7207	1.7278	1.72779	1.7	

ICAL Date 10/13/15 ICAL ID#:11-GEN-05-43I

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-48K)

CCV = 25.0 ppm (Ref.#11-GEN-05-48O)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-49C)

		date	time
Analyzed By: B. Witt	Date Analyzed	6/13/2016	16:00:00
Reviewed By:	Date Reviewed	6/16/16	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	6223-2d	1	2.454	0.7207	1.7336	1.73359	1.73	
27	lcs4	1	24.690	0.7207	23.9689	23.96889	24.0	
28	k1606223-003	1	13.454	0.7207	12.7337	12.73369	12.7	
29	6223-3d	1	13.202	0.7207	12.4809	12.48089	12.5	
30	k1606223-004	1	7.120	0.7207	6.3995	6.39949	6.4	
31	6223-4d	1	6.990	0.7207	6.2690	6.26899	6.27	
32	k1606386-002	1	1.196	0.7207	0.4754	0.47539	<0.5	
33	6386-2d	1	1.168	0.7207	0.4472	0.44719	<0.5	
34	6386-2ms	1	26.084	0.7207	25.3631	25.36309	25.36	
35	k1606386-008	5	1.112	0.7207	0.3913	1.95645	1.96 nr	
36	6386-8d	5	0.901	0.7207	0.1801	0.90045	0.90 nr	
37	ccv8	1	24.307	0.7207	23.5860	23.58599	23.59	%Rec=94
38	ccb8	1	0.738	0.7207	0.0169	0.01689	<0.5	
39		1		0.7207	-0.7207	-0.72071	<0.5	
40		1		0.7207	-0.7207	-0.72071	<0.5	
41		1		0.7207	-0.7207	-0.72071	<0.5	
42		1		0.7207	-0.7207	-0.72071	<0.5	
43		1		0.7207	-0.7207	-0.72071	<0.5	
44		1		0.7207	-0.7207	-0.72071	<0.5	
45		1		0.7207	-0.7207	-0.72071	<0.5	
46		1		0.7207	-0.7207	-0.72071	<0.5	
47		1		0.7207	-0.7207	-0.72071	<0.5	
48		1		0.7207	-0.7207	-0.72071	<0.5	
49		1		0.7207	-0.7207	-0.72071	<0.5	
50		1		0.7207	-0.7207	-0.72071	<0.5	

Analyzed By:	B. Hthr	Date Analyzed	6.13.16
Reviewed By:	V	Date Reviewed	6/16/16

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500693 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1605940-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.78 mg/L	10 ml	1.78 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1605940-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.75 mg/L	10 ml	1.75 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606150-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.35 mg/L	10 ml	1.35 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606150-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	3.18900000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	V
K1606150-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.99 mg/L	10 ml	2.99 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606150-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	3.05 mg/L	10 ml	3.05 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606150-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.95 mg/L	10 ml	2.95 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606228-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.72 mg/L	10 ml	2.72 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606228-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.64 mg/L	10 ml	2.64 mg/L	1	0.07	0.50			6/13/16 16:00	N	V
K1606404-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.62 mg/L	10 ml	2.62 mg/L	1	0.07	0.50			6/13/16 16:00	Y	V
KQ1606460-01	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	V
KQ1606460-02	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	23.93 mg/L	10 ml	23.9 mg/L	1	0.07	0.50	100		6/13/16 16:00	N	V
KQ1606460-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.77 mg/L	10 ml	23.8 mg/L	1					6/13/16 16:00	N	V
KQ1606460-04	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.59 mg/L	10 ml	23.6 mg/L	1					6/13/16 16:00	N	V
KQ1606460-05	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.35 mg/L	10 ml	23.3 mg/L	1					6/13/16 16:00	N	V
KQ1606460-06	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	3.99000000000005E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	V
KQ1606460-07	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	1.68900000000001E	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	V
KQ1606460-08	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.04 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			6/13/16 16:00	N	V
KQ1606460-09	Carbon, Dissolved Organic (DOC)	MS	K1606404-001	Surface Water	27.79 mg/L	10 ml	27.8 mg/L	1	0.07	0.50	101		6/13/16 16:00	N	V
KQ1606460-10	Carbon, Dissolved Organic (DOC)	DMS	K1606404-001	Surface Water	27.85 mg/L	10 ml	27.8 mg/L	1	0.07	0.50	101	<1	6/13/16 16:00	N	V
KQ1606460-11	Carbon, Dissolved Organic (DOC)	DUP	K1606404-001	Surface Water	2.55 mg/L	10 ml	2.55 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	V
KQ1606460-12	Carbon, Dissolved Organic (DOC)	DUP	K1605940-001	Surface Water	1.64 mg/L	10 ml	1.64 mg/L	1	0.07	0.50		8	6/13/16 16:00	N	V
KQ1606460-13	Carbon, Dissolved Organic (DOC)	DUP	K1605940-002	Surface Water	1.81 mg/L	10 ml	1.81 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	V

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** BHETLAND **Analysis Lot:** 500693 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1606460-14	Carbon, Dissolved Organic (DOC)	DUP	K1606150-001	Surface Water	1.26 mg/L	10 ml	1.26 mg/L	1	0.07	0.50		7	6/13/16 16:00	N	V
KQ1606460-15	Carbon, Dissolved Organic (DOC)	DUP	K1606150-002	Surface Water	0.02 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	6/13/16 16:00	N	V
KQ1606460-16	Carbon, Dissolved Organic (DOC)	DUP	K1606150-003	Surface Water	2.96 mg/L	10 ml	2.96 mg/L	1	0.07	0.50		1	6/13/16 16:00	N	V
KQ1606460-17	Carbon, Dissolved Organic (DOC)	DUP	K1606150-004	Surface Water	2.96 mg/L	10 ml	2.96 mg/L	1	0.07	0.50		3	6/13/16 16:00	N	V
KQ1606460-18	Carbon, Dissolved Organic (DOC)	DUP	K1606150-005	Surface Water	2.94 mg/L	10 ml	2.94 mg/L	1	0.07	0.50		<1	6/13/16 16:00	N	V
KQ1606460-19	Carbon, Dissolved Organic (DOC)	DUP	K1606228-001	Surface Water	2.70 mg/L	10 ml	2.70 mg/L	1	0.07	0.50		1	6/13/16 16:00	N	V
KQ1606460-20	Carbon, Dissolved Organic (DOC)	DUP	K1606228-002	Surface Water	2.53 mg/L	10 ml	2.53 mg/L	1	0.07	0.50		4	6/13/16 16:00	N	V

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1		0.7207	-0.7207	-0.72071	<0.5	
2	mb3	1	0.720	0.7207	-0.0011	-0.00111	<0.5	
3	lcs3	1	24.649	0.7207	23.9279	23.92789	23.9	
4	ccv7	1	24.492	0.7207	23.7717	23.77169	23.8	%Rec=95
5	ccb7	1	0.725	0.7207	0.0040	0.00399	<0.5	
6	k1606404-001	1	3.339	0.7207	2.6186	2.61859	2.6	
7	6404-1d	1	3.271	0.7207	2.5503	2.55029	2.6	
8	6404-1ms	1	28.511	0.7207	27.7904	27.79039	28	
9	6404-1msd	1	28.569	0.7207	27.8486	27.84859	28	
10	k1605940-001	1	2.500	0.7207	1.7789	1.77889	1.8	
11	5940-1d	1	2.363	0.7207	1.6419	1.64189	1.6	
12	ccv8	1	24.307	0.7207	23.5860	23.58599	23.6	%Rec=94
13	ccb8	1	0.738	0.7207	0.0169	0.01689	<0.5	
14	k1605940-002	1	2.470	0.7207	1.7495	1.74949	1.7	
15	5940-2d	1	2.528	0.7207	1.8072	1.80719	1.8	
16	k1606150-001	1	2.066	0.7207	1.3456	1.34559	1.3	
17	6150-1d	1	1.979	0.7207	1.2587	1.25869	1.3	
18	k1606150-002	1	0.753	0.7207	0.0319	0.03189	<0.5	
19	6150-2d	1	0.741	0.7207	0.0204	0.02039	<0.5	
20	k1606150-003	1	3.715	0.7207	2.9940	2.99399	3.0	
21	6150-3d	1	3.680	0.7207	2.9592	2.95919	3.0	
22	k1606150-004	1	3.774	0.7207	3.0533	3.05329	3.1	
23	6150-4d	1	3.680	0.7207	2.9590	2.95899	3.0	
24	k1606150-005	1	3.670	0.7207	2.9497	2.94969	2.9	
25	6150-5d	1	3.657	0.7207	2.9364	2.93639	2.9	

ICAL Date 10/13/15 ICAL ID#:11-GEN-05-43I

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-48K)

CCV = 25.0 ppm (Ref.#11-GEN-05-48O)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-49C)

		date	time
Analyzed By: B. [signature]	Date Analyzed	6/13/2016	16:00:00
Reviewed By: [signature]	Date Reviewed	6/16/16	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	k1606228-001	1	3.445	0.7207	2.7245	2.72449	2.72	
27	6228-1d	1	3.418	0.7207	2.6968	2.69679	2.7	
28	k1606228-002	1	3.361	0.7207	2.6400	2.63999	2.6	
29	6228-2d	1	3.253	0.7207	2.5326	2.53259	2.5	
30	ccv9	1	24.067	0.7207	23.3462	23.34619	23.3	%Rec=93
31	ccb9	1	0.677	0.7207	-0.0439	-0.04391	<0.5	
32		1		0.7207	-0.7207	-0.72071	<0.5	
33		1		0.7207	-0.7207	-0.72071	<0.5	
34		1		0.7207	-0.7207	-0.72071	<0.5	
35		1		0.7207	-0.7207	-0.72071	<0.5	
36		1		0.7207	-0.7207	-0.72071	<0.5	
37		1		0.7207	-0.7207	-0.72071	<0.5	
38		1		0.7207	-0.7207	-0.72071	<0.5	
39		1		0.7207	-0.7207	-0.72071	<0.5	
40		1		0.7207	-0.7207	-0.72071	<0.5	
41		1		0.7207	-0.7207	-0.72071	<0.5	
42		1		0.7207	-0.7207	-0.72071	<0.5	
43		1		0.7207	-0.7207	-0.72071	<0.5	
44		1		0.7207	-0.7207	-0.72071	<0.5	
45		1		0.7207	-0.7207	-0.72071	<0.5	
46		1		0.7207	-0.7207	-0.72071	<0.5	
47		1		0.7207	-0.7207	-0.72071	<0.5	
48		1		0.7207	-0.7207	-0.72071	<0.5	
49		1		0.7207	-0.7207	-0.72071	<0.5	
50		1		0.7207	-0.7207	-0.72071	<0.5	

Analyzed By: S, Hom	Date Analyzed 6.13.16
Reviewed By:	Date Reviewed

TOC 500687
500689
500692
Doc 500693

Schedule: 061316

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2016/06/13 15:53 - Monday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Done
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Running
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
4	Sample	K1605750-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1605750-002.02ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1605750-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1605750-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1605750-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1605975-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
10	Sample	K1605975-001.01ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
11	Sample	K1605975-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1605983-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1606174-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1606174-001.01ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
15	Sample	K1605768-001.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1605768-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1605768-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1605914-032.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1605914-032.03ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	K1606159-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
22	Sample	K1606159-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1606042-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1606048-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1606048-001.01ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
26	Sample	K1606048-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1606048-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1606103-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
29	Sample	K1606195-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	K1606149-005.05 25x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1606149-007.05 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1606149-007.05ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
33	Sample	K1606149-008.05 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1605935-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1605935-001.02ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
36	Sample	K1605935-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1605935-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1605935-004.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
39	Sample	rb	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 061316

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
41	Sample	K1605935-005.02 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1605987-007.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1605987-007.03ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
44	Sample	K1606237-004.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1606238-001.04 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1606238-001.04ms 10x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
47	Sample	K1606160-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
48	Sample	K1606160-001.02ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
49	Sample	K1606160-002.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1606160-003.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1606160-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1606160-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1606162-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1606162-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1606162-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1606162-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1606223-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
58	Sample	K1606223-001.01ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1606223-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
2	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
60	Sample	K1606223-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1606223-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1606386-002.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1606386-002.09ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
64	Sample	K1606386-008.09 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1606404-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1606404-001.02ms/msd doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
67	Sample	K1605940-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
68	Sample	K1605940-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1606150-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
70	Sample	K1606150-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
71	Sample	K1606150-003.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	K1606150-004.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
73	Sample	K1606150-005.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1606228-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
75	Sample	K1606228-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 061316
Monday, June 13, 2016 02:07 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2016/06/15 08:55 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	061316	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v1) Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/13 14:07

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.94	15.56	1.62	49.69	05:23
2	TC Clean	7.62	9.23	1.61	51.17	04:03
3	TC Clean	2.97	4.85	1.88	50.21	03:50
4	TC Clean	3.31	4.98	1.67	51.16	03:50

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/13 14:29

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.91	2.81	1.90	49.11	05:20
2	TC Clean	6.47	8.35	1.88	50.37	03:58

3	TC Clean	2.90	4.90	2.00	50.58	03:46
4	TC Clean	2.67	4.76	2.09	50.76	03:51

Sample Type: Clean From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2016/06/13 14:51

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.53	2.52	1.99	48.62	05:19
2	TC Clean	5.87	7.86	1.98	50.46	03:55
3	TC Clean	2.68	5.04	2.36	51.05	03:45
4	TC Clean	2.99	5.12	2.13	50.68	03:50

Sample Type: Blank (Creating v876) From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2016/06/13 15:13

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.77	2.58	1.81	48.48	05:17
2	TC Clean	6.05	8.12	2.07	50.88	03:57
3	TC Clean	3.54	5.79	2.25	50.26	03:42
4	TC Clean	3.22	5.59	2.37	50.99	03:44
5	Reagent Blank	4.30	6.59	2.29	50.57	05:00
6	Acid Blank	0.77	2.86	2.08	48.06	05:24

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.9736 ppm (PASS)	0.0000 ppm	0%	2016/06/13 15:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.9736	9.7361	15.34	17.36	2.02	54.08	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.7998 ppm (PASS)	0.0000 ppm	0%	2016/06/13 16:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.7998	247.9981	190.84	193.07	2.24	54.08	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6385 ppm (PASS)	0.0000 ppm	0%	2016/06/13 16:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6385	6.3853	12.88	15.20	2.32	54.08	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.6376 ppm	0.0000 ppm	0.0000%	2016/06/13 16:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6376	6.3764	12.34	14.47	2.14	54.11	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.9441 ppm (PASS)	0.0000 ppm	0%	2016/06/13 16:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	24.9441	249.4413	191.90	194.03	2.13	54.12	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	ICS	1.0405 ppm	0.0000 ppm	0.0000%	2016/06/13 16:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0405	10.4046	15.31	17.53	2.23	54.13	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1605750-002.02	10.7316 ppm	0.0866 ppm	0.8100%	2016/06/13 17:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.7928	107.9281	87.14	89.03	1.90	54.12	10:28
2	TOC	10.6704	106.7035	86.24	88.36	2.13	54.14	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1605750-002.02ms	37.0905 ppm	0.0000 ppm	0.0000%	2016/06/13 17:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	37.0905	370.9054	280.83	282.98	2.15	54.14	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1605750-003.02	10.7262 ppm	0.4102 ppm	3.8200%	2016/06/13 17:54

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	11.0163	110.1629	88.78	90.59	1.81	54.13	10:23
2	TOC	10.4362	104.3615	84.51	86.73	2.22	54.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1605750-004.02	10.6690 ppm	0.1864 ppm	1.7500%	2016/06/13 18:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.8008	108.0082	87.20	89.43	2.24	54.16	10:25
2	TOC	10.5372	105.3716	85.25	87.34	2.09	54.18	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1605750-005.02	8.0878 ppm	0.1565 ppm	1.9300%	2016/06/13 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.1984	81.9842	68.03	70.15	2.13	54.20	10:25
2	TOC	7.9771	79.7712	66.40	68.47	2.08	54.21	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1605975-001.01	2.2166 ppm	0.0238 ppm	1.0700%	2016/06/13 19:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2335	22.3345	24.09	26.17	2.07	54.20	10:26
2	TOC	2.1998	21.9978	23.84	25.95	2.11	54.20	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1605975-001.01ms	27.6860 ppm	0.0000 ppm	0.0000%	2016/06/13 19:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.6860	276.8602	211.56	213.36	1.79	54.21	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8424 ppm (PASS)	0.0000 ppm	0%	2016/06/13 19:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8424	248.4244	191.15	193.54	2.39	54.22	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7727 ppm (PASS)	0.0000 ppm	0%	2016/06/13 20:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7727	7.7267	13.86	16.03	2.16	54.23	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1605975-002.01	1.9991 ppm	0.0568 ppm	2.8400%	2016/06/13 20:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0393	20.3931	22.66	24.72	2.06	54.24	10:24
2	TOC	1.9589	19.5893	22.07	24.33	2.26	54.26	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1605983-001.01	0.8143 ppm	0.0018 ppm	0.2200%	2016/06/13 20:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8156	8.1563	13.65	15.44	1.79	54.26	10:33

2	TOC	0.8130	8.1305	13.63	15.55	1.92	54.27	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1606174-001.01	3.1358 ppm	0.0768 ppm	2.4500%	2016/06/13 21:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1901	31.9008	31.14	33.14	2.00	54.28	10:31
2	TOC	3.0815	30.8146	30.34	32.25	1.91	54.31	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1606174-001.01ms	28.1495 ppm	0.0000 ppm	0.0000%	2016/06/13 21:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.1495	281.4953	214.98	216.85	1.87	54.30	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1605768-001.05	1.1911 ppm	0.0156 ppm	1.3100%	2016/06/13 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2022	12.0216	16.50	18.53	2.03	54.32	10:24
2	TOC	1.1800	11.8003	16.33	17.98	1.65	54.32	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1605768-002.04	1.0912 ppm	0.0004 ppm	0.0400%	2016/06/13 22:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0915	10.9151	15.68	17.61	1.92	54.32	10:29
2	TOC	1.0910	10.9097	15.68	17.58	1.90	54.33	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1605768-003.02	2.0107 ppm	0.0270 ppm	1.3400%	2016/06/13 23:01

~~1.9917~~ 1.9917

2.0298

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1605914-032.03	0.8495 ppm	0.0237 ppm	2.7900%	2016/06/13 23:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8663	8.6627	14.02	15.86	1.83	54.35	10:25
2	TOC	0.8327	8.3274	13.78	15.37	1.59	54.35	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1605914-032.03ms	25.3406 ppm	0.0000 ppm	0.0000%	2016/06/13 23:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.3406	253.4063	194.29	196.09	1.80	54.37	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	K1606159-001.01	0.9093 ppm	0.0818 ppm	9.0000%	2016/06/14 00:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9671	9.6715	14.77	16.76	1.99	54.39	10:23
2	TOC	0.8515	8.5147	13.91	16.16	2.24	54.40	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3944 ppm (PASS)	0.0000 ppm	0%	2016/06/14 00:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

B	TOC	25 ppm	1	24.3944	243.9440	187.85	189.51	1.66	54.43	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7023 ppm (PASS)	0.0000 ppm	0%	2016/06/14 00:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7023	7.0234	13.35	15.28	1.93	54.44	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	MB2	0.7141 ppm	0.0000 ppm	0.0000%	2016/06/14 01:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7141	7.1407	12.90	14.54	1.64	54.45	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7736 ppm (PASS)	0.0000 ppm	0%	2016/06/14 01:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	24.7736	247.7360	190.64	192.38	1.74	54.46	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1606159-002.01	0.9289 ppm	0.0709 ppm	7.6400%	2016/06/14 01:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9791	9.7909	14.85	16.60	1.74	54.46	10:25
2	TOC	0.8788	8.7876	14.12	15.82	1.70	54.46	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1606042-001.01	1.3971 ppm	0.0315 ppm	2.2500%	2016/06/14 02:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4194	14.1939	18.10	19.89	1.79	54.48	10:24
2	TOC	1.3749	13.7486	17.77	19.44	1.67	54.49	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1606048-001.01	1.9156 ppm	0.0726 ppm	3.7900%	2016/06/14 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9669	19.6694	22.13	23.62	1.49	54.49	10:26
2	TOC	1.8643	18.6430	21.37	23.30	1.93	54.50	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1606048-001.01ms	27.2301 ppm	0.0000 ppm	0.0000%	2016/06/14 03:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.2301	272.3011	208.21	209.88	1.67	54.44	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1606048-002.01	1.9965 ppm	0.0660 ppm	3.3100%	2016/06/14 03:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0432	20.4324	22.69	24.51	1.82	54.48	10:24

2	TOC	1.9498	19.4983	22.00	23.69	1.69	54.43	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1606048-003.01	1.8822 ppm	0.0025 ppm	0.1300%	2016/06/14 03:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8840	18.8399	21.52	23.21	1.69	54.40	10:24
2	TOC	1.8805	18.8046	21.49	23.37	1.87	54.45	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1606103-002.02	1.3129 ppm	0.0736 ppm	5.6100%	2016/06/14 04:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3649	13.6495	17.70	19.40	1.71	54.40	10:23
2	TOC	1.2608	12.6081	16.93	18.85	1.92	54.46	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1606195-002.03	1.4467 ppm	0.0821 ppm	5.6700%	2016/06/14 04:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5048	15.0479	18.73	20.62	1.90	54.44	10:26
2	TOC	1.3887	13.8871	17.87	19.32	1.45	54.51	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

<u>Sample Type</u>: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3200 ppm (PASS)	0.0000 ppm	0%	2016/06/14 05:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3200	243.2000	187.30	189.07	1.77	54.48	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7379 ppm (PASS)	0.0000 ppm	0%	2016/06/14 05:20

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7379	7.3791	13.61	15.26	1.66	54.42	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1606149-005.05 25x	1.0951 ppm	0.0370 ppm	3.3800%	2016/06/14 05:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0690	10.6897	15.52	17.33	1.82	54.42	10:25
2	TOC	1.1212	11.2124	15.90	17.59	1.69	54.38	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1606149-007.05 2x	1.5518 ppm	0.0335 ppm	2.1600%	2016/06/14 06:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5755	15.7552	19.25	20.90	1.65	54.38	10:28
2	TOC	1.5281	15.2814	18.90	20.70	1.80	54.38	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1606149-007.05ms 2x	23.0574 ppm	0.0000 ppm	0.0000%	2016/06/14 06:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	23.0574	230.5742	177.47	179.28	1.80	54.35	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1606149-008.05 10x	1.0508 ppm	0.0811 ppm	7.7200%	2016/06/14 06:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1082	11.0821	15.80	17.81	2.00	54.36	10:26
2	TOC	0.9935	9.9348	14.96	16.77	1.81	54.36	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1605935-001.02	3.0089 ppm	0.0896 ppm	2.9800%	2016/06/14 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0722	30.7223	30.27	32.13	1.86	54.33	10:23
2	TOC	2.9456	29.4556	29.34	31.43	2.09	54.34	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1605935-001.02ms	28.4034 ppm	0.0000 ppm	0.0000%	2016/06/14 07:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.4034	284.0342	216.85	218.57	1.72	54.41	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1605935-002.02	27.5465 ppm	0.1196 ppm	0.4300%	2016/06/14 07:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.6310	276.3104	211.16	213.06	1.90	54.38	10:22
2	TOC	27.4619	274.6187	209.91	211.69	1.78	54.41	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1605935-003.02	32.5007 ppm	0.4584 ppm	1.4100%	2016/06/14 08:21

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	32.8248	328.2484	249.41	251.49	2.07	54.35	10:26
2	TOC	32.1765	321.7655	244.64	246.67	2.03	54.40	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1605935-004.02 2x	34.1948 ppm	0.1919 ppm	0.5600%	2016/06/14 08:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	34.3305	343.3051	260.50	262.75	2.25	54.40	10:27
2	TOC	34.0591	340.5911	258.50	260.36	1.85	54.38	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	rb	0.7916 ppm	0.1193 ppm	15.0800%	2016/06/14 09:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9431	9.4311	14.59	16.55	1.96	54.38	10:24
2	TOC	0.8201	8.2011	13.68	15.50	1.81	54.36	10:27
3	TOC	0.6644	6.6438	12.54	14.56	2.02	54.39	10:28
4	TOC	0.7389	7.3892	13.08	14.85	1.77	54.40	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3119 ppm (PASS)	0.0000 ppm	0%	2016/06/14 10:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3119	243.1186	187.24	189.22	1.98	54.40	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7527 ppm (PASS)	0.0000 ppm	0%	2016/06/14 10:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7527	7.5271	13.72	15.58	1.87	54.32	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	MB3	0.7196 ppm	0.0000 ppm	0.0000%	2016/06/14 10:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7196	7.1964	12.94	14.97	2.02	54.32	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.6486 ppm (PASS)	0.0000 ppm	0%	2016/06/14 10:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	24.6486	246.4856	189.72	191.42	1.70	54.55	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1605935-005.02 10x	8.8048 ppm	0.0704 ppm	0.8000%	2016/06/14 11:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.8546	88.5459	72.86	75.14	2.28	54.57	10:26
2	TOC	8.7551	87.5507	72.13	73.85	1.72	54.55	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1605987-007.03	6.1178 ppm	0.0932 ppm	1.5200%	2016/06/14 11:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1838	61.8376	53.19	54.95	1.76	54.56	10:24
2	TOC	6.0519	60.5193	52.22	53.96	1.74	54.57	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1605987-007.03ms	32.5055 ppm	0.0000 ppm	0.0000%	2016/06/14 12:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	32.5055	325.0552	247.06	249.00	1.93	54.55	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1606237-004.09	1.8921 ppm	0.1381 ppm	7.3000%	2016/06/14 12:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9898	19.8975	22.30	24.20	1.90	54.51	10:27
2	TOC	1.7945	17.9452	20.86	22.97	2.11	54.50	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1606238-001.04 10x	0.8525 ppm	0.1005 ppm	11.7900%	2016/06/14 12:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9236	9.2356	14.44	16.27	1.83	54.51	10:29
2	TOC	0.7814	7.8142	13.40	15.68	2.28	54.51	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1606238-001.04ms 10x	20.5458 ppm	0.0000 ppm	0.0000%	2016/06/14 13:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.5458	205.4585	158.97	160.96	1.99	54.52	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1606160-001.02	3.6974 ppm	0.1126 ppm	3.0500%	2016/06/14 13:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7770	37.7700	35.46	37.64	2.18	54.50	10:28
2	TOC	3.6177	36.1774	34.29	36.08	1.79	54.49	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1606160-001.02ms	30.1996 ppm	0.0000 ppm	0.0000%	2016/06/14 13:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.1996	301.9963	230.08	231.97	1.89	54.48	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5196 ppm (PASS)	0.0000 ppm	0%	2016/06/14 14:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5196	245.1958	188.77	190.93	2.16	54.45	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7649 ppm (PASS)	0.0000 ppm	0%	2016/06/14 14:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7649	7.6493	13.81	15.89	2.08	54.43	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1606160-002.02 2x	7.5003 ppm	0.0019 ppm	0.0300%	2016/06/14 14:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.4989	74.9895	62.88	64.94	2.06	54.45	10:23
2	TOC	7.5017	75.0166	62.90	65.22	2.32	54.46	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1606160-003.02 2x	10.4093 ppm	0.1446 ppm	1.3900%	2016/06/14 15:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.5115	105.1150	85.06	86.62	1.56	54.46	10:28
2	TOC	10.3070	103.0704	83.56	85.75	2.19	54.43	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1606160-004.02	1.5395 ppm	0.0376 ppm	2.4400%	2016/06/14 15:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5662	15.6615	19.18	21.48	2.31	54.42	10:29
2	TOC	1.5129	15.1293	18.79	20.66	1.87	54.43	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1606160-005.02	3.7718 ppm	0.0226 ppm	0.6000%	2016/06/14 16:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7877	37.8773	35.54	37.21	1.67	54.41	10:29
2	TOC	3.7558	37.5582	35.31	36.97	1.67	54.43	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1606162-001.02	3.8729 ppm	0.0730 ppm	1.8800%	2016/06/14 16:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9244	39.2444	36.55	38.51	1.96	54.43	10:25
2	TOC	3.8213	38.2126	35.79	37.65	1.86	54.43	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1606162-002.02	1.6871 ppm	0.0833 ppm	4.9400%	2016/06/14 16:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7460	17.4605	20.50	22.44	1.93	54.39	10:25
2	TOC	1.6282	16.2820	19.63	21.84	2.20	54.37	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1606162-003.02	8.5937 ppm	0.1165 ppm	1.3600%	2016/06/14 17:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.6761	86.7605	71.55	73.62	2.07	54.40	10:28
2	TOC	8.5114	85.1137	70.33	72.54	2.20	54.40	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1606162-004.02	0.9834 ppm	0.0108 ppm	1.1000%	2016/06/14 17:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9910	9.9104	14.94	17.17	2.23	54.42	10:27
2	TOC	0.9757	9.7570	14.83	16.89	2.06	54.45	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1606223-001.01	2.1916 ppm	0.0760 ppm	3.4700%	2016/06/14 18:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2454	22.4540	24.18	26.06	1.88	54.48	10:27
2	TOC	2.1379	21.3787	23.39	25.55	2.17	54.48	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	K1606223-001.01ms	27.4945 ppm	0.0000 ppm	0.0000%	2016/06/14 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.4945	274.9445	210.15	212.01	1.86	54.47	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4924 ppm (PASS)	0.0000 ppm	0%	2016/06/14 19:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4924	244.9243	188.57	190.95	2.38	54.48	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7247 ppm (PASS)	0.0000 ppm	0%	2016/06/14 19:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7247	7.2474	13.51	15.28	1.76	54.49	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1606223-002.01	2.4514 ppm	0.0041 ppm	0.1700%	2016/06/14 19:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4485	24.4851	25.68	27.58	1.90	54.52	10:26
2	TOC	2.4543	24.5435	25.72	27.74	2.02	54.51	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> LCS From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	24.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.6896 ppm (PASS)	0.0000 ppm	0%	2016/06/14 20:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	24.0 ppm	1	24.6896	246.8956	190.02	191.99	1.97	54.53	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	24 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1606223-003.01	13.3280 ppm	0.1788 ppm	1.3400%	2016/06/14 20:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.4544	134.5441	106.74	108.67	1.93	54.54	10:25
2	TOC	13.2016	132.0161	104.88	106.89	2.01	54.56	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1606223-004.01	7.0549 ppm	0.0923 ppm	1.3100%	2016/06/14 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1202	71.2015	60.09	61.99	1.91	54.57	10:29
2	TOC	6.9897	69.8968	59.12	61.25	2.12	54.59	10:23

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1606386-002.09	1.1820 ppm	0.0199 ppm	1.6800%	2016/06/14 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1961	11.9605	16.45	18.41	1.96	54.60	10:26
2	TOC	1.1679	11.6795	16.24	18.38	2.13	54.64	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1606386-002.09ms	26.0838 ppm	0.0000 ppm	0.0000%	2016/06/14 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.0838	260.8382	199.76	201.61	1.85	54.65	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1606386-008.09 5x	1.0064 ppm	0.1494 ppm	14.8400%	2016/06/14 21:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1120	11.1201	15.83	17.86	2.03	54.68	10:28
2	TOC	0.9008	9.0076	14.28	16.51	2.23	54.66	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1606404-001.02 doc	3.3051 ppm	0.0483 ppm	1.4600%	2016/06/14 22:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3393	33.3928	32.24	34.14	1.91	54.67	10:30
2	TOC	3.2710	32.7099	31.74	33.35	1.62	54.69	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1606404-001.02ms/msd doc	28.5402 ppm	0.0412 ppm	0.1400%	2016/06/14 22:49

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	28.5111	285.1108	217.64	219.53	1.89	54.69	10:26
2	TOC	28.5693	285.6933	218.07	219.76	1.69	54.72	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1605940-001.02 doc	2.4311 ppm	0.0969 ppm	3.9800%	2016/06/14 23:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4996	24.9956	26.05	28.11	2.06	54.73	10:30
2	TOC	2.3626	23.6257	25.04	26.62	1.57	54.65	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3067 ppm (PASS)	0.0000 ppm	0%	2016/06/14 23:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3067	243.0670	187.20	188.73	1.52	54.71	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.7376 ppm (PASS)	0.0000 ppm	0%	2016/06/14 23:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.7376	7.3764	13.61	15.42	1.81	54.67	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1605940-002.02 doc	2.4991 ppm	0.0408 ppm	1.6300%	2016/06/15 00:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4702	24.7023	25.84	27.53	1.70	54.74	10:25
2	TOC	2.5279	25.2794	26.26	27.96	1.70	54.68	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1606150-001.02 doc	2.0229 ppm	0.0614 ppm	3.0400%	2016/06/15 00:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0663	20.6632	22.86	24.38	1.51	54.70	10:29
2	TOC	1.9794	19.7943	22.22	24.15	1.93	54.67	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1606150-002.02 doc	0.7469 ppm	0.0082 ppm	1.0900%	2016/06/15 01:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7526	7.5263	13.19	15.07	1.88	54.63	10:25
2	TOC	0.7411	7.4109	13.10	14.71	1.61	54.68	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1606150-003.02 doc	3.6973 ppm	0.0246 ppm	0.6600%	2016/06/15 01:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7147	37.1468	35.00	36.49	1.49	54.65	10:24
2	TOC	3.6799	36.7993	34.75	36.33	1.58	54.70	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1606150-004.02 doc	3.7268 ppm	0.0667 ppm	1.7900%	2016/06/15 02:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	3.7740	37.7401	35.44	37.12	1.68	54.68	10:28
2	TOC	3.6797	36.7966	34.74	36.48	1.74	54.65	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1606150-005.02 doc	3.6638 ppm	0.0094 ppm	0.2600%	2016/06/15 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.6704	36.7042	34.68	36.41	1.74	54.72	10:27
2	TOC	3.6571	36.5712	34.58	36.04	1.46	54.64	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1606228-001.02 doc	3.4313 ppm	0.0196 ppm	0.5700%	2016/06/15 03:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.4452	34.4518	33.02	34.84	1.82	54.69	10:29
2	TOC	3.4175	34.1749	32.81	34.41	1.60	54.69	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	K1606228-002.02 doc	3.3070 ppm	0.0759 ppm	2.3000%	2016/06/15 03:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3607	33.6074	32.40	34.13	1.73	54.63	10:28
2	TOC	3.2533	32.5334	31.60	33.28	1.67	54.69	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.6425 (IC) (v876)	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0669 ppm (PASS)	0.0000 ppm	0%	2016/06/15 03:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0669	240.6693	185.44	187.06	1.62	54.68	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	50 ppmC

Sample Type: Check Standard --> CCB   From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.6768 ppm (PASS)	0.0000 ppm	0%	2016/06/15 04:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.6768	6.7682	13.16	14.97	1.81	54.63	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v3)	CAS_salt_010711 (v14)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v875	1.4050	0.4960	0.0000	0.0000	0.0000	2016/06/11 15:48	Fusion1 (Fusion1)
v876	1.4343	0.7750	0.0000	0.0000	0.0000	2016/06/13 15:46	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	**v14**	Calibration curve formula:	TOC: y = 7.366x + 8.173
Ver Creation:	2016/02/29 21:15	r^2 value:	TOC: r^2 = 0.99958
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	10.4880	0.0000		2016/02/29 19:49
0.500 ppm	13.1800	0.5000		2016/02/29 20:03
1.0 ppm	16.6270	1.0000		2016/02/29 20:17

5.0 ppm	45.3570	5.0000		2016/02/29 20:31
10 ppm	75.7540	10.0000		2016/02/29 20:46
25 ppm	192.0010	25.0000		2016/02/29 20:59
50 ppm	377.7470	50.0000		2016/02/29 21:13

Methods

Name: CAS_salt_010711 (TOC)

Version: v3 Operator: Gen Chem Lab (Fusion1)
Ver Creation: 2013/02/04 11:45
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	7
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	7
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2016/06/15 04:27

0.639				OBSERVATIONS	12	BELOW
0.638				STD Deviation	0.04457	BELOW
0.773				AVERAGE	0.71495	ABOVE
0.702	0.702	0.702	0.702	UCL	0.75952	0.7023
0.714	0.714	0.714	0.714	LCL	0.67038	0.7141
0.738	0.738	0.738	0.738			0.7379
0.753	0.753	0.753	0.753			0.7527
0.720	0.720	0.720	0.720	OBSERVATIONS	8	0.7196
0.765				STD Deviation	0.28262	ABOVE
0.725	0.725	0.725	0.725	AVERAGE	0.72071	0.7247
0.738	0.738	0.738	0.738	UCL	1.00333	0.7376
0.677	0.677	0.677	0.677	LCL	0.43809	0.6768
						BELOW
						BELOW
				OBSERVATIONS	8	BELOW
				STD Deviation	0.28262	BELOW
				AVERAGE	0.72071	BELOW
				UCL	1.00333	BELOW
				LCL	0.43809	BELOW
						BELOW
						BELOW
				OBSERVATIONS	8	BELOW
				STD Deviation	0.02534	BELOW
				AVERAGE	0.72071	BELOW
						BELOW
						BELOW
						BELOW
						BELOW
						BELOW
						BELOW

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM5310C	Total Organic Carbon (Persulfate-UV Oxidation)				SM5310C
SM2540C	Solids, Total Dissolved (Gravimetric, Dried at 180 Degrees C.)				SM2540C
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_an	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
ALS_K	K1605750	Convent	K1605750-001	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-002	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-002	Water	SM2540C		5/31/2016		
ALS_K	K1605750	Convent	K1605750-002	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-002	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-003	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-003	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-003	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-003	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-004	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-004	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-004	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-004	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-005	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-005	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-005	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-005	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-MB1	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-MB1	Water	SM2540C		5/31/2016		
ALS_K	K1605750	Convent	K1605750-MB1	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-MB1	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-MB2	Water	SM2540C		5/31/2016		
ALS_K	K1605750	Convent	K1605750-MB2	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-MB3	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-MB4	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-LCS1	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-LCS1	Water	SM2540C		5/31/2016		
ALS_K	K1605750	Convent	K1605750-LCS1	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-LCS1	Water	SM2540D		5/31/2016		
ALS_K	K1605750	Convent	K1605750-LCS2	Water	SM2540C		6/1/2016		
ALS_K	K1605750	Convent	K1605750-001DUP	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-002DUP	Water	SM5310C		6/11/2016		
ALS_K	K1605750	Convent	K1605750-002DUP	Water	SM5310C		6/13/2016		
ALS_K	K1605750	Convent	K1605750-003DUP	Water	SM5310C		6/11/2016		

ALS_K	K1605750	Convent	K1605750-003DUP	Water	SM5310C	6/13/2016
ALS_K	K1605750	Convent	K1605750-004DUP	Water	SM5310C	6/11/2016
ALS_K	K1605750	Convent	K1605750-004DUP	Water	SM5310C	6/13/2016
ALS_K	K1605750	Convent	K1605750-005DUP	Water	SM5310C	6/11/2016
ALS_K	K1605750	Convent	K1605750-005DUP	Water	SM5310C	6/13/2016
ALS_K	K1605750	Convent	K1605750-001MS	Water	SM5310C	6/11/2016
ALS_K	K1605750	Convent	K1605750-002MS	Water	SM5310C	6/13/2016

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
ALS_K	500529	TOC-O	K-TOC-01	6/11/2016
ALS_K	498903	BALANCE	K-Balance-31	5/31/2016
ALS_K	500687	TOC-O	K-TOC-01	6/13/2016
ALS_K	498899	BALANCE	K-Balance-31	5/31/2016
ALS_K	499094	BALANCE	K-Balance-31	6/1/2016

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
ALS_K	K1605750	Convent	6/11/2016	6/11/2016		

lab	lab_qc_batch	prep_date	extraction_date
ALS_K	500529		
ALS_K	498903		
ALS_K	500687		
ALS_K	498899		
ALS_K	499094		

lab	labqc_samp	qc_type	comments
ALS_K	K1605750-MB1	MethodBlank	
ALS_K	K1605750-MB2	MethodBlank	
ALS_K	K1605750-MB3	MethodBlank	
ALS_K	K1605750-MB4	MethodBlank	
ALS_K	K1605750-LCS1	LCS	
ALS_K	K1605750-LCS2	LCS	
ALS_K	K1605750-001MS	MatSpike	
ALS_K	K1605750-002MS	MatSpike	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basi	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_l	maximum_	lab_flags	comments	lab_qc_batch	lab_cal_batch
ALS_K	K1605750	Convent	K1605750-001	Water	SM5310C	DOC	Unfilt	1	0.53	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-002	Water	SM5310C	DOC	Unfilt	1	9.89	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-002	Water	SM2540C	TDS	Unfilt	1	115	mg/L		Y	10	10	10				498903	498903
ALS_K	K1605750	Convent	K1605750-002	Water	SM5310C	Carbon_org	Unfilt	1	10.1	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-002	Water	SM2540D	TSS	Unfilt	1	10	mg/L		Y	5	5	5				498899	498899
ALS_K	K1605750	Convent	K1605750-003	Water	SM5310C	DOC	Unfilt	1	9.5	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-003	Water	SM2540C	TDS	Unfilt	1	136	mg/L		Y	10	10	10				499094	499094
ALS_K	K1605750	Convent	K1605750-003	Water	SM5310C	Carbon_org	Unfilt	1	10.3	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-003	Water	SM2540D	TSS	Unfilt	1	13	mg/L		Y	5	5	5				498899	498899
ALS_K	K1605750	Convent	K1605750-004	Water	SM5310C	DOC	Unfilt	1	9.55	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-004	Water	SM2540C	TDS	Unfilt	1	145	mg/L		Y	10	10	10				499094	499094
ALS_K	K1605750	Convent	K1605750-004	Water	SM5310C	Carbon_org	Unfilt	1	10.1	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-004	Water	SM2540D	TSS	Unfilt	1	14	mg/L		Y	5	5	5				498899	498899
ALS_K	K1605750	Convent	K1605750-005	Water	SM5310C	DOC	Unfilt	1	14.1	mg/L		Y	0.2	1	1				500529	500529
ALS_K	K1605750	Convent	K1605750-005	Water	SM2540C	TDS	Unfilt	1	506	mg/L		Y	10	10	10				499094	499094
ALS_K	K1605750	Convent	K1605750-005	Water	SM5310C	Carbon_org	Unfilt	1	7.48	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-005	Water	SM2540D	TSS	Unfilt	1	38.5	mg/L		Y	5	5	5				498899	498899
ALS_K	K1605750	Convent	K1605750-001DUP	Water	SM5310C	DOC	Unfilt	2	0.34	mg/L		Y	0.07	0.5	0.5		J,*		500529	500529
ALS_K	K1605750	Convent	K1605750-002DUP	Water	SM5310C	DOC	Unfilt	2	9.64	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-002DUP	Water	SM5310C	Carbon_org	Unfilt	2	9.95	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-003DUP	Water	SM5310C	DOC	Unfilt	2	9.51	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-003DUP	Water	SM5310C	Carbon_org	Unfilt	2	9.72	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-004DUP	Water	SM5310C	DOC	Unfilt	2	9.6	mg/L		Y	0.07	0.5	0.5				500529	500529
ALS_K	K1605750	Convent	K1605750-004DUP	Water	SM5310C	Carbon_org	Unfilt	2	9.82	mg/L		Y	0.07	0.5	0.5				500687	500687
ALS_K	K1605750	Convent	K1605750-005DUP	Water	SM5310C	DOC	Unfilt	2	14	mg/L		Y	0.2	1	1				500529	500529
ALS_K	K1605750	Convent	K1605750-005DUP	Water	SM5310C	Carbon_org	Unfilt	2	7.26	mg/L		Y	0.07	0.5	0.5				500687	500687

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
ALS_K	K1605750-001	C643-0903	SW083	NA	5/28/2016	
ALS_K	K1605750-002	C643-0903	SW062	NA	5/28/2016	
ALS_K	K1605750-003	C643-0903	SW059	NA	5/28/2016	
ALS_K	K1605750-004	C643-0903	SW068	NA	5/28/2016	
ALS_K	K1605750-005	C643-0903	SW071	NA	5/28/2016	
ALS_K	K1605750-MB1			K1605750-MB1	NA	NA
ALS_K	K1605750-MB2			K1605750-MB2	NA	NA
ALS_K	K1605750-MB3			K1605750-MB3	NA	NA
ALS_K	K1605750-MB4			K1605750-MB4	NA	NA
ALS_K	K1605750-LCS1			K1605750-LCS1	NA	NA
ALS_K	K1605750-LCS2			K1605750-LCS2	NA	NA
ALS_K	K1605750-001DUP	C643-0903	SW083	NA	5/28/2016	
ALS_K	K1605750-002DUP	C643-0903	SW062	NA	5/28/2016	
ALS_K	K1605750-003DUP	C643-0903	SW059	NA	5/28/2016	
ALS_K	K1605750-004DUP	C643-0903	SW068	NA	5/28/2016	
ALS_K	K1605750-005DUP	C643-0903	SW071	NA	5/28/2016	
ALS_K	K1605750-001MS	C643-0903	SW083	K1605750-001MS	5/28/2016	
ALS_K	K1605750-002MS	C643-0903	SW062	K1605750-002MS	5/28/2016	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
ALS_K	500529	K1605750-LCS1	DOC	Unfilt	L	24	24.1	83	117	mg/L	
ALS_K	498903	K1605750-LCS1	TDS	Unfilt	L	714	702	85	115	mg/L	
ALS_K	500687	K1605750-LCS1	Carbon_org	Unfilt	L	24	24.2	83	117	mg/L	
ALS_K	498899	K1605750-LCS1	TSS	Unfilt	L	141	138	85	115	mg/L	
ALS_K	499094	K1605750-LCS2	TDS	Unfilt	L	714	710	85	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units
ALS_K	500529	K1605750-001MS	SM5310C	DOC	Unfilt	1	0.53		25	25.9			mg/L
ALS_K	500687	K1605750-002MS	SM5310C	Carbon_org	Unfilt	1	10.1		25	36.4			mg/L

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
ALS_K	500529	K1605750-MB1	SM5310C	DOC	1	0.07		mg/L	U
ALS_K	498903	K1605750-MB1	SM2540C	TDS	1			mg/L	U
ALS_K	500687	K1605750-MB1	SM5310C	Carbon_org	1	0.07		mg/L	U
ALS_K	498899	K1605750-MB1	SM2540D	TSS	1			mg/L	U
ALS_K	498903	K1605750-MB2	SM2540C	TDS	1			mg/L	U
ALS_K	498899	K1605750-MB2	SM2540D	TSS	1			mg/L	U
ALS_K	499094	K1605750-MB3	SM2540C	TDS	1			mg/L	U
ALS_K	499094	K1605750-MB4	SM2540C	TDS	1			mg/L	U

method_code	description
EPA1613B	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water

lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
			EPA1613B

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	PenClDiBzFuran

analyte_name	cas_rn	meas_basis	lab_rep	meas_value	units	std_dev
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	

detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags
N	1.83	5	5		U
N	2.6	5	5		U
N	0.82	25	25		U
N	1.83	5	5		U
N	2.6	5	5		U
N	0.825	25	25		U

comments	lab_qc_batch	lab_cal_batch	original_lab_result	lab_conc_qual	sig_figs	estimated
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				

rejected	greater_than	tic	qa_level	validator_flags	reportable	principal_doc

lab	lab_pkg	anal_type	labsample	material_analyzed
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600282-006	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-01	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-01	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-02	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-02	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-03	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-03	NonAq Liquid

method_code	date_extracted	date_analyzed	mass_gm	vol_ml
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
ALS_E	P603991.0282	HRGC/HRMS	E-HRMS-08	6/25/2016

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst
ALS_E	E1600282	DioxFuran	6/25/2016	6/25/2016	
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	6/25/2016	6/25/2016	

comments

lab	lab_qc_batch	prep_date	extraction_date
ALS_E	262304	5/26/2016	5/26/2016

lab	labqc_samp	qc_type	comments
ALS_E	EQ1600219-01	MethodBlank	
ALS_E	EQ1600219-02	LCS	
ALS_E	EQ1600219-03	LCSDUP	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc
ALS_E	262304	EQ1600219-02	2378TetDioxin	WetWt	L	95.9
ALS_E	262304	EQ1600219-02	2378TetFuran	WetWt	L	95.9
ALS_E	262304	EQ1600219-02	23478PenFuran	WetWt	L	479
ALS_E	262304	EQ1600219-03	2378TetDioxin	WetWt	L	98.4
ALS_E	262304	EQ1600219-03	2378TetFuran	WetWt	L	98.4
ALS_E	262304	EQ1600219-03	23478PenFuran	WetWt	L	492

meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
82.2	67	158	ng/kg	
86.1	75	158	ng/kg	
484	68	160	ng/kg	
83.1	67	158	ng/kg	
94.1	75	158	ng/kg	
478	68	160	ng/kg	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc
lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc

initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units
initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	23478PenFuran	1	1
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	PenClDiBzFuran	1	1.44

retention_time	units	lab_flags
	ng/kg	U
	ng/kg	U
	ng/kg	JK
	ng/kg	U
	ng/kg	U
	ng/kg	J

lab	lab_qc_batch	labsample	method_code	surrogate
ALS_E	262304	E1600282-006	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	E1600282-006	EPA1613B	13C2378TCDD
ALS_E	262304	E1600282-006	EPA1613B	13C2378TCDF
ALS_E	262304	E1600282-006	EPA1613B	13C12378PeCDF
ALS_E	262304	E1600282-006	EPA1613B	13C23478PeCDF
ALS_E	262304	E1600282-006	EPA1613B	13C123789HxCDF
ALS_E	262304	E1600282-006	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-01	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-02	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-03	EPA1613B	37Cl4-2378TCDD

meas_basis	column_no	lab_rep	recovery	out_flag
WetWt	PR	1		N
WetWt	PR	1	28	N
WetWt	PR	1	25	N
WetWt	PR	1	34	N
WetWt	PR	1	35	N
WetWt	PR	1	40	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	44	N
WetWt	PR	1	41	N
WetWt	PR	1	41	N
WetWt	PR	1	39	N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	47	N
WetWt	PR	1	45	N
WetWt	PR	1	45	N
WetWt	PR	1	43	N
WetWt	PR	1	44	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	38	N
WetWt	PR	1	36	N
WetWt	PR	1	42	N
WetWt	PR	1	41	N
WetWt	PR	1	38	N
WetWt	PR	1		N

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
ALS_E	E1600282-006	150557-01.01	04052016SJPW10	NA	4/8/2016	
ALS_E	EQ1600219-01			EQ1600219-01	NA	NA
ALS_E	EQ1600219-02			EQ1600219-02	NA	NA
ALS_E	EQ1600219-03			EQ1600219-03	NA	NA

method_code	description
EPA1613B	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water

lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
			EPA1613B

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid	EPA1613B	PenClDiBzFuran

analyte_name	cas_rn	meas_basis	lab_rep	meas_value	units	std_dev
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	

detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags
N	1.83	5	5		U
N	2.6	5	5		U
N	0.82	25	25		U
N	1.83	5	5		U
N	2.6	5	5		U
N	0.825	25	25		U

comments	lab_qc_batch	lab_cal_batch	original_lab_result	lab_conc_qual	sig_figs	estimated
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				
	262304	P603991.0282				

rejected	greater_than	tic	qa_level	validator_flags	reportable	principal_doc

lab	lab_pkg	anal_type	labsample	material_analyzed
ALS_E	E1600282	DioxFuran	E1600282-006	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600282-006	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-01	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-01	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-02	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-02	NonAq Liquid
ALS_E	E1600282	DioxFuran	EQ1600219-03	NonAq Liquid
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-03	NonAq Liquid

method_code	date_extracted	date_analyzed	mass_gm	vol_ml
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
ALS_E	P603991.0282	HRGC/HRMS	E-HRMS-08	6/25/2016

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst
ALS_E	E1600282	DioxFuran	6/25/2016	6/25/2016	
ALS_E	E1600282	1,2,3,4-Tetrachlorodibenzofuran-C13	6/25/2016	6/25/2016	

comments

lab	lab_qc_batch	prep_date	extraction_date
ALS_E	262304	5/26/2016	5/26/2016

lab	labqc_samp	qc_type	comments
ALS_E	EQ1600219-01	MethodBlank	
ALS_E	EQ1600219-02	LCS	
ALS_E	EQ1600219-03	LCSDUP	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc
ALS_E	262304	EQ1600219-02	2378TetDioxin	WetWt	L	95.9
ALS_E	262304	EQ1600219-02	2378TetFuran	WetWt	L	95.9
ALS_E	262304	EQ1600219-02	23478PenFuran	WetWt	L	479
ALS_E	262304	EQ1600219-03	2378TetDioxin	WetWt	L	98.4
ALS_E	262304	EQ1600219-03	2378TetFuran	WetWt	L	98.4
ALS_E	262304	EQ1600219-03	23478PenFuran	WetWt	L	492

meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
82.2	67	158	ng/kg	
86.1	75	158	ng/kg	
484	68	160	ng/kg	
83.1	67	158	ng/kg	
94.1	75	158	ng/kg	
478	68	160	ng/kg	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc
lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc

initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units
initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	23478PenFuran	1	1
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	PenClDiBzFuran	1	1.44

retention_time	units	lab_flags
	ng/kg	U
	ng/kg	U
	ng/kg	JK
	ng/kg	U
	ng/kg	U
	ng/kg	J

lab	lab_qc_batch	labsample	method_code	surrogate
ALS_E	262304	E1600282-006	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	E1600282-006	EPA1613B	13C2378TCDD
ALS_E	262304	E1600282-006	EPA1613B	13C2378TCDF
ALS_E	262304	E1600282-006	EPA1613B	13C12378PeCDF
ALS_E	262304	E1600282-006	EPA1613B	13C23478PeCDF
ALS_E	262304	E1600282-006	EPA1613B	13C123789HxCDF
ALS_E	262304	E1600282-006	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-01	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-02	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-03	EPA1613B	37Cl4-2378TCDD

meas_basis	column_no	lab_rep	recovery	out_flag
WetWt	PR	1		N
WetWt	PR	1	28	N
WetWt	PR	1	25	N
WetWt	PR	1	34	N
WetWt	PR	1	35	N
WetWt	PR	1	40	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	44	N
WetWt	PR	1	41	N
WetWt	PR	1	41	N
WetWt	PR	1	39	N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	47	N
WetWt	PR	1	45	N
WetWt	PR	1	45	N
WetWt	PR	1	43	N
WetWt	PR	1	44	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	38	N
WetWt	PR	1	36	N
WetWt	PR	1	42	N
WetWt	PR	1	41	N
WetWt	PR	1	38	N
WetWt	PR	1		N

Analytical Results Summary

HOUSTON

Semivoa GCMS

E-HRMS-08

504,016

1613B / Dioxins Furans

Calibration ID: 06/25/16

EQ1600219-01 / MB / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P603993 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	440.214 pg	22 Percent	Y*	6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	412.855 pg	21 Percent	Y*	6/25/16 19:48:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	413.012 pg	21 Percent	Y*	6/25/16 19:48:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	393.545 pg	20 Percent	Y*	6/25/16 19:48:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	744.801 pg	19 Percent	Y*	6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.500 pg	Percent		6/25/16 19:48:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.599	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.795	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	2.215 pg	1.00 ng/Kg	JK	6/25/16 19:48:00	11.3	0.388	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.599	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.795	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	3.186 pg	1.44 ng/Kg	J	6/25/16 19:48:00	11.3	0.378	Y	Y

EQ1600219-02 / LCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P604002 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	469.689 pg	23 Percent	Y	6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	448.193 pg	22 Percent	Y	6/26/16 03:09:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	452.986 pg	23 Percent	Y	6/26/16 03:09:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	428.181 pg	21 Percent		6/26/16 03:09:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	879.532 pg	22 Percent	Y	6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.643 pg	Percent		6/26/16 03:09:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	171.389 pg	82.2 ng/Kg		6/26/16 03:09:00	2.40	0.446	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	179.591 pg	86.1 ng/Kg		6/26/16 03:09:00	2.40	0.574	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	1009.184 pg	484 ng/Kg		6/26/16 03:09:00	12.0	0.862	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	171.389 pg	82.2 ng/Kg		6/26/16 03:09:00	2.40	0.446	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	179.591 pg	86.1 ng/Kg		6/26/16 03:09:00	2.40	0.574	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	1941.701 pg	931 ng/Kg		6/26/16 03:09:00	12.0	0.831	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

HOUSTON

Semivoa GCMS

E-HRMS-08

504,016 Calibration ID: 06/25/16

1613B / Dioxins Furans

EQ1600219-02 / LCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P604002 MB File Name: P603993 CCV File Name: P603991

EQ1600219-03 / DLCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P604003 MB File Name: P603993 CCV File Name: P603991

Surrogates	***Raw Result***	***Final Result***	***Qualifiers***	***Analysis Date/Time***	***Picked?***	***RptList?***
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	380.653 pg	19 Percent	Y*	6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	364.866 pg	18 Percent	Y*	6/26/16 03:58:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	423.579 pg	21 Percent	Y	6/26/16 03:58:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	407.906 pg	20 Percent	Y	6/26/16 03:58:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	758.698 pg	19 Percent	Y	6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0 pg	0 Percent		6/26/16 03:58:00		

Target Analytes	***Raw Result***	***Final Result***	***Qualifiers***	***Analysis Date/Time***	***Adj. MRL***	***Adj. MDL***	***Picked?***	***RptList?***
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	168.822 pg	83.1 ng/Kg		6/26/16 03:58:00	6.46	6.46	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	191.292 pg	94.1 ng/Kg		6/26/16 03:58:00	6.40	6.40	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	972.275 pg	478 ng/Kg		6/26/16 03:58:00	12.3	4.39	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	168.822 pg	83.1 ng/Kg		6/26/16 03:58:00	6.46	6.46	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	191.292 pg	94.1 ng/Kg		6/26/16 03:58:00	6.40	6.40	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	1867.738 pg	919 ng/Kg		6/26/16 03:58:00	12.3	4.33	Y	Y

E1600282-006 / 04052016SJPW10 / NonAq Liquid / As Received / Tier IV / M Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P603994 MB File Name: P603993 CCV File Name: P603991

Surrogates	***Raw Result***	***Final Result***	***Qualifiers***	***Analysis Date/Time***	***Picked?***	***RptList?***
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 20:37:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	280.969 pg	14 Percent	Y	6/25/16 20:37:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	252.203 pg	13 Percent	Y	6/25/16 20:37:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	344.201 pg	17 Percent	Y	6/25/16 20:37:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	350.773 pg	18 Percent	Y	6/25/16 20:37:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	798.042 pg	20 Percent	Y	6/25/16 20:37:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.274 pg	Percent		6/25/16 20:37:00		

Target Analytes	***Raw Result***	***Final Result***	***Qualifiers***	***Analysis Date/Time***	***Adj. MRL***	***Adj. MDL***	***Picked?***	***RptList?***
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 20:37:00	5.00	1.83	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 20:37:00	5.00	2.60	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0 pg	0 ng/Kg	U	6/25/16 20:37:00	25.0	0.820	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

HOUSTON
Semivoa GCMS
E-HRMS-08

504,016 Calibration ID: 06/25/16
1613B / Dioxins Furans

E1600282-006 / 04052016SJPW10 / NonAq Liquid / As Received / Tier IV / M Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P603994 MB File Name: P603993 CCV File Name: P603991

Target Analytes	***Raw Result***	***Final Result***	***Qualifiers***	***Analysis Date/Time***	***Adj. MRL***	***Adj. MDL***	***Picked?***	***RptList?***
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 20:37:00	5.00	1.83	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 20:37:00	5.00	2.60	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	0 pg	0 ng/Kg	U	6/25/16 20:37:00	25.0	0.825	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
ALS_E	E1600326-001	150557-01.01	03162016SJGW1	NA	4/8/2016	
ALS_E	E1600326-002	150557-01.01	04072016SJGW1	NA	4/8/2016	
ALS_E	E1600326-003	150557-01.01	04072016SJGW2	NA	4/8/2016	
ALS_E	E1600326-004	150557-01.01	04072016SJGW10	NA	4/8/2016	
ALS_E	E1600326-005	150557-01.01	04072016SJGW11	NA	4/8/2016	
ALS_E	E1600326-006	150557-01.01	04072016SJGW12	NA	4/8/2016	
ALS_E	E1600326-007	150557-01.01	04072016SJGW13	NA	4/8/2016	
ALS_E	E1600326-008	150557-01.01	04072016SJGW14	NA	4/8/2016	
ALS_E	E1600326-009	150557-01.01	04072016SJGW15	NA	4/8/2016	
ALS_E	EQ1600219-01			EQ1600219-01	NA	NA
ALS_E	EQ1600220-01			EQ1600220-01	NA	NA
ALS_E	EQ1600219-02			EQ1600219-02	NA	NA
ALS_E	EQ1600220-02			EQ1600220-02	NA	NA
ALS_E	EQ1600219-03			EQ1600219-03	NA	NA
ALS_E	EQ1600220-03			EQ1600220-03	NA	NA

method_code	description
EPA1613B	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water

lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
			EPA1613B

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	2378TetFuran
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid	EPA1613B	PenClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	2378TetDioxin
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	2378TetFuran

ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	23478PenFuran
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	TetClDiBzDioxin
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	TetClDiBzFuran
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid	EPA1613B	PenClDiBzFuran

analyte_name	cas_rn	meas_basis	lab_rep	meas_value	units	std_dev
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	21.4	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	23.7	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	21.4	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	23.7	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	11.3	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	12.6	ng/kg	
2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg	
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	11.3	ng/kg	
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	12.6	ng/kg	
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg	
2,3,7,8-Tetrachlorodibenzodioxin	1746016	WetWt	1	5	ng/kg	
2,3,7,8-Tetrachlorodibenzofuran	51207319	WetWt	1	5	ng/kg	

2,3,4,7,8-Pentachlorodibenzofuran	57117314	WetWt	1	25	ng/kg
Tetrachlorodibenzodioxin (Total)	41903575	WetWt	1	5	ng/kg
Tetrachlorodibenzofuran (Total)	30402143	WetWt	1	5	ng/kg
Pentachlorodibenzofuran (Total)	30402154	WetWt	1	25	ng/kg

detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags
N	1.11	5	5		U
N	1.54	5	5		U
N	0.69	25	25		U
N	1.11	5	5		U
N	1.54	5	5		U
N	0.668	25	25		U
N	0.88	5	5		U
N	1.38	5	5		U
N	0.665	25	25		U
N	0.88	5	5		U
N	1.38	5	5		U
N	0.647	25	25		U
N	1.08	5	5		U
N	1.45	5	5		U
N	0.838	25	25		U
N	1.08	5	5		U
N	1.45	5	5		U
N	0.825	25	25		U
N	1.59	5	5		U
N	1.89	5	5		U
N	0.936	25	25		U
N	1.59	5	5		U
N	1.89	5	5		U
N	0.907	25	25		U
N	1.71	5	5		U
N	2.4	5	5		U
N	1.04	25	25		U
N	1.71	5	5		U
N	2.4	5	5		U
N	1	25	25		U
N	1.27	5	5		U
N	1.72	5	5		U
N	0.821	25	25		U
N	1.27	5	5		U
N	1.72	5	5		U
N	0.796	25	25		U
N	21.4	21.4	21.4		U
N	23.7	23.7	23.7		U
N	12.9	25	25		U
N	21.4	21.4	21.4		U
N	23.7	23.7	23.7		U
N	12.5	25	25		U
N	11.3	11.3	11.3		U
N	12.6	12.6	12.6		U
N	5.77	25	25		U
N	11.3	11.3	11.3		U
N	12.6	12.6	12.6		U
N	5.59	25	25		U
N	1.28	5	5		U
N	1.49	5	5		U

N	0.78	25	25	U
N	1.28	5	5	U
N	1.49	5	5	U
N	0.756	25	25	U

comments	lab_qc_batch	lab_cal_batch	original_lab_result	lab_conc_qual	sig_figs	estimated
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
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	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
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	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262304	P603991.0326				
	262305	P603991.0326				
	262305	P603991.0326				
	262305	P603991.0326				
	262305	P603991.0326				
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	262305	P603991.0326				
	262305	P603991.0326				
	262305	P603991.0326				
	262305	P604006.0326				
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262305	P604006.0326
262305	P604006.0326
262305	P604006.0326
262305	P604006.0326

rejected	greater_than	tic	qa_level	validator_flags	reportable	principal_doc

lab	lab_pkg	anal_type	labsample	material_analyzed
ALS_E	E1600326	DioxFuran	E1600326-001	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-001	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-002	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-002	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-003	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-003	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-004	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-004	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-005	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-005	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-006	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-006	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-007	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-007	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-008	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-008	NonAq Liquid
ALS_E	E1600326	DioxFuran	E1600326-009	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	E1600326-009	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600219-01	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-01	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600220-01	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600220-01	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600219-02	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-02	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600220-02	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600220-02	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600219-03	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600219-03	NonAq Liquid
ALS_E	E1600326	DioxFuran	EQ1600220-03	NonAq Liquid
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	EQ1600220-03	NonAq Liquid

method_code	date_extracted	date_analyzed	mass_gm	vol_ml
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/25/2016	6/25/2016		
EPA1613B	5/25/2016	6/25/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/26/2016	6/25/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/26/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		
EPA1613B	5/25/2016	6/26/2016		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
ALS_E	P603991.0326	HRGC/HRMS	E-HRMS-08	6/25/2016
ALS_E	P604006.0326	HRGC/HRMS	E-HRMS-08	6/25/2016

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst
ALS_E	E1600326	DioxFuran	6/25/2016	6/25/2016	
ALS_E	E1600326	1,2,3,4-Tetrachlorodibenzofuran-C13	6/25/2016	6/25/2016	

comments

lab	lab_qc_batch	prep_date	extraction_date
ALS_E	262304	5/26/2016	5/26/2016
ALS_E	262305	5/25/2016	5/25/2016

lab	labqc_samp	qc_type	comments
ALS_E	EQ1600219-01	MethodBlank	
ALS_E	EQ1600220-01	MethodBlank	
ALS_E	EQ1600219-02	LCS	
ALS_E	EQ1600220-02	LCS	
ALS_E	EQ1600219-03	LCSDUP	
ALS_E	EQ1600220-03	LCSDUP	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
ALS_E	262304	EQ1600219-02	2378TetDioxin	WetWt	L	95.9	82.2	67	158	ng/kg	
ALS_E	262304	EQ1600219-02	2378TetFuran	WetWt	L	95.9	86.1	75	158	ng/kg	
ALS_E	262304	EQ1600219-02	23478PenFuran	WetWt	L	479	484	68	160	ng/kg	
ALS_E	262305	EQ1600220-02	2378TetDioxin	WetWt	L	99.7	101	67	158	ng/kg	
ALS_E	262305	EQ1600220-02	2378TetFuran	WetWt	L	99.7	97.3	75	158	ng/kg	
ALS_E	262305	EQ1600220-02	23478PenFuran	WetWt	L	498	500	68	160	ng/kg	
ALS_E	262304	EQ1600219-03	2378TetDioxin	WetWt	L	98.4	83.1	67	158	ng/kg	
ALS_E	262304	EQ1600219-03	2378TetFuran	WetWt	L	98.4	94.1	75	158	ng/kg	
ALS_E	262304	EQ1600219-03	23478PenFuran	WetWt	L	492	478	68	160	ng/kg	
ALS_E	262305	EQ1600220-03	2378TetDioxin	WetWt	L	95.7	95.1	67	158	ng/kg	
ALS_E	262305	EQ1600220-03	2378TetFuran	WetWt	L	95.7	98.4	75	158	ng/kg	
ALS_E	262305	EQ1600220-03	23478PenFuran	WetWt	L	479	482	68	160	ng/kg	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc
lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc

initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units
initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	2378TetFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	23478PenFuran	1	0.388
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzDioxin	1	0.599
ALS_E	262304	EQ1600219-01	EPA1613B	TetClDiBzFuran	1	0.795
ALS_E	262304	EQ1600219-01	EPA1613B	PenClDiBzFuran	1	0.378
ALS_E	262305	EQ1600220-01	EPA1613B	2378TetDioxin	1	0.687
ALS_E	262305	EQ1600220-01	EPA1613B	2378TetFuran	1	0.684
ALS_E	262305	EQ1600220-01	EPA1613B	23478PenFuran	1	0.521
ALS_E	262305	EQ1600220-01	EPA1613B	TetClDiBzDioxin	1	0.687
ALS_E	262305	EQ1600220-01	EPA1613B	TetClDiBzFuran	1	0.684
ALS_E	262305	EQ1600220-01	EPA1613B	PenClDiBzFuran	1	0.504

retention_time	units	lab_flags
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U
	ng/kg	U

lab	lab_qc_batch	labsample	method_code	surrogate
ALS_E	262304	E1600326-001	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	E1600326-001	EPA1613B	13C2378TCDD
ALS_E	262304	E1600326-001	EPA1613B	13C2378TCDF
ALS_E	262304	E1600326-001	EPA1613B	13C12378PeCDF
ALS_E	262304	E1600326-001	EPA1613B	13C23478PeCDF
ALS_E	262304	E1600326-001	EPA1613B	13C123789HxCDF
ALS_E	262304	E1600326-001	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	E1600326-002	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	E1600326-002	EPA1613B	13C2378TCDD
ALS_E	262304	E1600326-002	EPA1613B	13C2378TCDF
ALS_E	262304	E1600326-002	EPA1613B	13C12378PeCDF
ALS_E	262304	E1600326-002	EPA1613B	13C23478PeCDF
ALS_E	262304	E1600326-002	EPA1613B	13C123789HxCDF
ALS_E	262304	E1600326-002	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	E1600326-003	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	E1600326-003	EPA1613B	13C2378TCDD
ALS_E	262304	E1600326-003	EPA1613B	13C2378TCDF
ALS_E	262304	E1600326-003	EPA1613B	13C12378PeCDF
ALS_E	262304	E1600326-003	EPA1613B	13C23478PeCDF
ALS_E	262304	E1600326-003	EPA1613B	13C123789HxCDF
ALS_E	262304	E1600326-003	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-004	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	E1600326-004	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-004	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-004	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-004	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-004	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-004	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-005	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	E1600326-005	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-005	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-005	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-005	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-005	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-005	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-006	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	E1600326-006	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-006	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-006	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-006	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-006	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-006	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-007	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	E1600326-007	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-007	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-007	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-007	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-007	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-007	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-008	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13

ALS_E	262305	E1600326-008	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-008	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-008	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-008	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-008	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-008	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	E1600326-009	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	E1600326-009	EPA1613B	13C2378TCDD
ALS_E	262305	E1600326-009	EPA1613B	13C2378TCDF
ALS_E	262305	E1600326-009	EPA1613B	13C12378PeCDF
ALS_E	262305	E1600326-009	EPA1613B	13C23478PeCDF
ALS_E	262305	E1600326-009	EPA1613B	13C123789HxCDF
ALS_E	262305	E1600326-009	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-01	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-01	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-01	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	EQ1600220-01	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	EQ1600220-01	EPA1613B	13C2378TCDD
ALS_E	262305	EQ1600220-01	EPA1613B	13C2378TCDF
ALS_E	262305	EQ1600220-01	EPA1613B	13C12378PeCDF
ALS_E	262305	EQ1600220-01	EPA1613B	13C23478PeCDF
ALS_E	262305	EQ1600220-01	EPA1613B	13C123789HxCDF
ALS_E	262305	EQ1600220-01	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-02	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-02	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-02	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	EQ1600220-02	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	EQ1600220-02	EPA1613B	13C2378TCDD
ALS_E	262305	EQ1600220-02	EPA1613B	13C2378TCDF
ALS_E	262305	EQ1600220-02	EPA1613B	13C12378PeCDF
ALS_E	262305	EQ1600220-02	EPA1613B	13C23478PeCDF
ALS_E	262305	EQ1600220-02	EPA1613B	13C123789HxCDF
ALS_E	262305	EQ1600220-02	EPA1613B	37Cl4-2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDD
ALS_E	262304	EQ1600219-03	EPA1613B	13C2378TCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C12378PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C23478PeCDF
ALS_E	262304	EQ1600219-03	EPA1613B	13C123789HxCDF
ALS_E	262304	EQ1600219-03	EPA1613B	37Cl4-2378TCDD
ALS_E	262305	EQ1600220-03	EPA1613B	^1,2,3,4-Tetrachlorodibenzofuran-C13
ALS_E	262305	EQ1600220-03	EPA1613B	13C2378TCDD
ALS_E	262305	EQ1600220-03	EPA1613B	13C2378TCDF

ALS_E	262305	EQ1600220-03	EPA1613B	13C12378PeCDF
ALS_E	262305	EQ1600220-03	EPA1613B	13C23478PeCDF
ALS_E	262305	EQ1600220-03	EPA1613B	13C123789HxCDF
ALS_E	262305	EQ1600220-03	EPA1613B	37Cl4-2378TCDD

meas_basis	column_no	lab_rep	recovery	out_flag
WetWt	PR	1		N
WetWt	PR	1	46	N
WetWt	PR	1	44	N
WetWt	PR	1	43	N
WetWt	PR	1	41	N
WetWt	PR	1	40	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	44	N
WetWt	PR	1	42	N
WetWt	PR	1	44	N
WetWt	PR	1	42	N
WetWt	PR	1	45	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	43	N
WetWt	PR	1	41	N
WetWt	PR	1	43	N
WetWt	PR	1	41	N
WetWt	PR	1	43	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	35	N
WetWt	PR	1	36	N
WetWt	PR	1	43	N
WetWt	PR	1		N
WetWt	PR	1	46	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	30	N
WetWt	PR	1	31	N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1	43	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	36	N
WetWt	PR	1	38	N
WetWt	PR	1	41	N
WetWt	PR	1		N
WetWt	PR	1	42	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	26	N
WetWt	PR	1	28	N
WetWt	PR	1	38	N
WetWt	PR	1		N
WetWt	PR	1	36	N
WetWt	PR	1		N
WetWt	PR	1		N

WetWt	PR	1	31	N
WetWt	PR	1	32	N
WetWt	PR	1	40	N
WetWt	PR	1		N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	32	N
WetWt	PR	1	31	N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1	42	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	44	N
WetWt	PR	1	41	N
WetWt	PR	1	41	N
WetWt	PR	1	39	N
WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	27	N
WetWt	PR	1	26	N
WetWt	PR	1	26	N
WetWt	PR	1		N
WetWt	PR	1	30	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	47	N
WetWt	PR	1	45	N
WetWt	PR	1	45	N
WetWt	PR	1	43	N
WetWt	PR	1	44	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	31	N
WetWt	PR	1	30	N
WetWt	PR	1	34	N
WetWt	PR	1		N
WetWt	PR	1	39	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	38	N
WetWt	PR	1	36	N
WetWt	PR	1	42	N
WetWt	PR	1	41	N
WetWt	PR	1	38	N
WetWt	PR	1		N
WetWt	PR	1		N
WetWt	PR	1	32	N
WetWt	PR	1	30	N

WetWt	PR	1	37	N
WetWt	PR	1		N
WetWt	PR	1	37	N
WetWt	PR	1		N

Analytical Results Summary

HOUSTON
Semivoa GCMS
E-HRMS-08
504,016
1613B / Dioxins Furans

Calibration ID: 06/25/16

EQ1600219-01 / MB / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P603993 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	440.214 pg	22 Percent	Y*	6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	412.855 pg	21 Percent	Y*	6/25/16 19:48:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	413.012 pg	21 Percent	Y*	6/25/16 19:48:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	393.545 pg	20 Percent	Y*	6/25/16 19:48:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	744.801 pg	19 Percent	Y*	6/25/16 19:48:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.500 pg	Percent		6/25/16 19:48:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.599	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.795	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	2.215 pg	1.00 ng/Kg	JK	6/25/16 19:48:00	11.3	0.388	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.599	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 19:48:00	2.26	0.795	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	3.186 pg	1.44 ng/Kg	J	6/25/16 19:48:00	11.3	0.378	Y	Y

EQ1600219-02 / LCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P604002 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	469.689 pg	23 Percent	Y	6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	448.193 pg	22 Percent	Y	6/26/16 03:09:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	452.986 pg	23 Percent	Y	6/26/16 03:09:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	428.181 pg	21 Percent		6/26/16 03:09:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	879.532 pg	22 Percent	Y	6/26/16 03:09:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.643 pg	Percent		6/26/16 03:09:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	171.389 pg	82.2 ng/Kg		6/26/16 03:09:00	2.40	0.446	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	179.591 pg	86.1 ng/Kg		6/26/16 03:09:00	2.40	0.574	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	1009.184 pg	484 ng/Kg		6/26/16 03:09:00	12.0	0.862	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	171.389 pg	82.2 ng/Kg		6/26/16 03:09:00	2.40	0.446	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	179.591 pg	86.1 ng/Kg		6/26/16 03:09:00	2.40	0.574	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	1941.701 pg	931 ng/Kg		6/26/16 03:09:00	12.0	0.831	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

HOUSTON
Semivoa GCMS
E-HRMS-08

504,016 Calibration ID: 06/25/16
1613B / Dioxins Furans

EQ1600219-02 / LCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P604002 MB File Name: P603993 CCV File Name: P603991

EQ1600219-03 / DLCS / NonAq Liquid / As Received / Tier IV / MDL=Y Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P604003 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	380.653 pg	19 Percent	Y*	6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	364.866 pg	18 Percent	Y*	6/26/16 03:58:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	423.579 pg	21 Percent	Y	6/26/16 03:58:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	407.906 pg	20 Percent	Y	6/26/16 03:58:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	758.698 pg	19 Percent	Y	6/26/16 03:58:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0 pg	0 Percent		6/26/16 03:58:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	168.822 pg	83.1 ng/Kg		6/26/16 03:58:00	6.46	6.46	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	191.292 pg	94.1 ng/Kg		6/26/16 03:58:00	6.40	6.40	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	972.275 pg	478 ng/Kg		6/26/16 03:58:00	12.3	4.39	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	168.822 pg	83.1 ng/Kg		6/26/16 03:58:00	6.46	6.46	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	191.292 pg	94.1 ng/Kg		6/26/16 03:58:00	6.40	6.40	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	1867.738 pg	919 ng/Kg		6/26/16 03:58:00	12.3	4.33	Y	Y

E1600326-001 / 03162016SJGW1 / NonAq Liquid / As Received / Tier IV / MI Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P603995 MB File Name: P603993 CCV File Name: P603991

Surrogates	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Picked?	RptList?
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 21:26:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	462.019 pg	23 Percent	Y	6/25/16 21:26:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	438.355 pg	22 Percent	Y	6/25/16 21:26:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	433.708 pg	22 Percent	Y	6/25/16 21:26:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	412.602 pg	21 Percent		6/25/16 21:26:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	796.103 pg	20 Percent	Y	6/25/16 21:26:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.392 pg	Percent		6/25/16 21:26:00		

Target Analytes	Raw Result	Final Result	Qualifiers	Analysis Date/Time	Adj. MRL	Adj. MDL	Picked?	RptList?
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 21:26:00	5.00	1.11	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 21:26:00	5.00	1.54	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0 pg	0 ng/Kg	U	6/25/16 21:26:00	25.0	0.690	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

HOUSTON
Semivoa GCMS
E-HRMS-08
504,016
1613B / Dioxins Furans

Calibration ID: 06/25/16

E1600326-001 / 03162016SJGW1 / NonAq Liquid / As Received / Tier IV / MI Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P603995 MB File Name: P603993 CCV File Name: P603991

Target Analytes	*Raw Result*	*Final Result*	*Qualifiers*	*Analysis Date/Time*	*Adj. MRL*	*Adj. MDL*	*Picked?*	*RptList?*
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 21:26:00	5.00	1.11	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 21:26:00	5.00	1.54	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	0 pg	0 ng/Kg	U	6/25/16 21:26:00	25.0	0.668	Y	Y

E1600326-002 / 04072016SJGW1 / NonAq Liquid / As Received / Tier IV / MI Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P603996 MB File Name: P603993 CCV File Name: P603991

Surrogates	*Raw Result*	*Final Result*	*Qualifiers*	*Analysis Date/Time*	*Picked?*	*RptList?*
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 22:15:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	438.374 pg	22 Percent	Y	6/25/16 22:15:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	421.476 pg	21 Percent	Y	6/25/16 22:15:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	442.004 pg	22 Percent	Y	6/25/16 22:15:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	423.750 pg	21 Percent		6/25/16 22:15:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	899.743 pg	22 Percent	Y	6/25/16 22:15:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.390 pg	Percent		6/25/16 22:15:00		

Target Analytes	*Raw Result*	*Final Result*	*Qualifiers*	*Analysis Date/Time*	*Adj. MRL*	*Adj. MDL*	*Picked?*	*RptList?*
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 22:15:00	5.00	0.880	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 22:15:00	5.00	1.38	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0 pg	0 ng/Kg	U	6/25/16 22:15:00	25.0	0.665	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 22:15:00	5.00	0.880	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 22:15:00	5.00	1.38	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	0 pg	0 ng/Kg	U	6/25/16 22:15:00	25.0	0.647	Y	Y

E1600326-003 / 04072016SJGW2 / NonAq Liquid / As Received / Tier IV / MI Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**
File Name: P603997 MB File Name: P603993 CCV File Name: P603991

Surrogates	*Raw Result*	*Final Result*	*Qualifiers*	*Analysis Date/Time*	*Picked?*	*RptList?*
1,2,3,4-Tetrachlorodibenzofuran-C13	0 pg			6/25/16 23:04:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-C13	429.453 pg	21 Percent	Y	6/25/16 23:04:00		
2,3,7,8-Tetrachlorodibenzofuran-C13	410.775 pg	21 Percent	Y	6/25/16 23:04:00		
1,2,3,7,8-Pentachlorodibenzofuran-C13	425.054 pg	21 Percent	Y	6/25/16 23:04:00		
2,3,4,7,8-Pentachlorodibenzofuran-C13	412.451 pg	21 Percent		6/25/16 23:04:00		
1,2,3,7,8,9-Hexachlorodibenzofuran-C13	865.210 pg	22 Percent	Y	6/25/16 23:04:00		
2,3,7,8-Tetrachlorodibenzo-p-dioxin-Cl37	0.742 pg	Percent		6/25/16 23:04:00		

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

HOUSTON

Semivoa GCMS

E-HRMS-08

504,016

1613B / Dioxins Furans

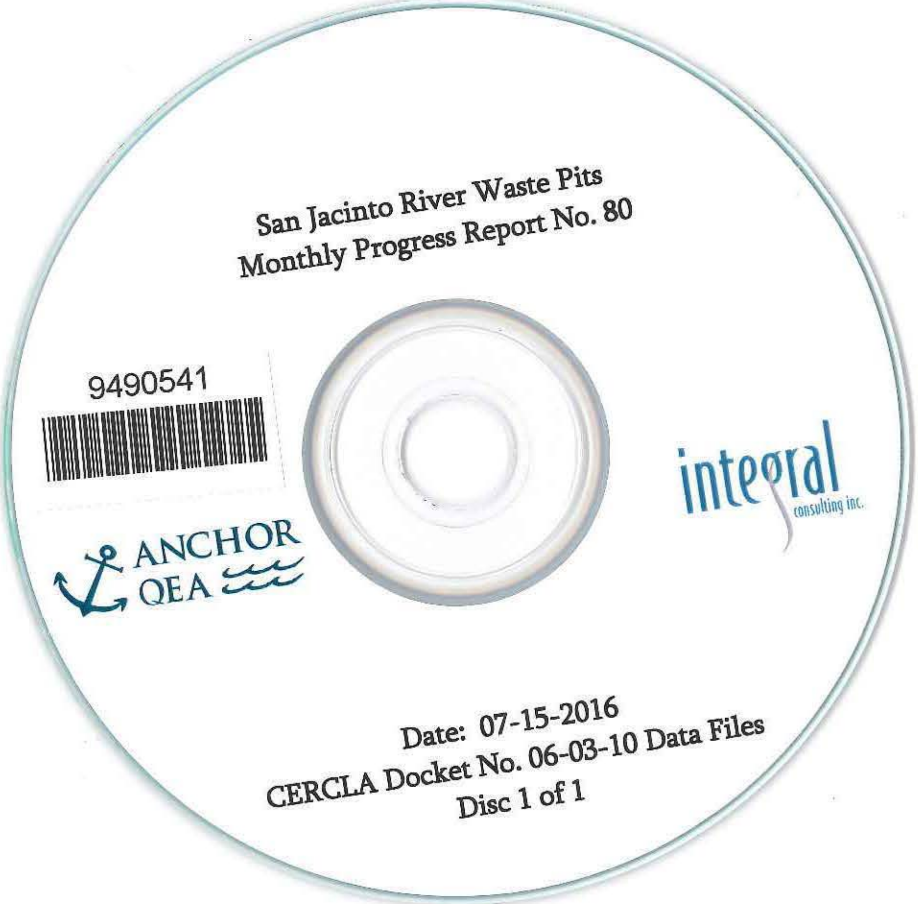
Calibration ID: 06/25/16

E1600326-003 / 04072016SJGW2 / NonAq Liquid / As Received / Tier IV / MI Prep Spiking Solutions **Rpt. List: 15747 Spec: 13734 ver. 7**

File Name: P603997 MB File Name: P603993 CCV File Name: P603991

Target Analytes	*Raw Result*	*Final Result*	*Qualifiers*	*Analysis Date/Time*	*Adj. MRL*	*Adj. MDL*	*Picked?*	*RptList?*
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD	0 pg	0 ng/Kg	U	6/25/16 23:04:00	5.00	1.08	Y	Y
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0 pg	0 ng/Kg	U	6/25/16 23:04:00	5.00	1.45	Y	Y
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0 pg	0 ng/Kg	U	6/25/16 23:04:00	25.0	0.838	Y	Y
Tetrachlorodibenzo-p-dioxins (TCDD), Tota	0 pg	0 ng/Kg	U	6/25/16 23:04:00	5.00	1.08	Y	Y
Tetrachlorodibenzofurans (TCDF), Total	0 pg	0 ng/Kg	U	6/25/16 23:04:00	5.00	1.45	Y	Y
Pentachlorodibenzofurans (PeCDF), Total	0 pg	0 ng/Kg	U	6/25/16 23:04:00	25.0	0.825	Y	Y

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.


San Jacinto River Waste Pits
Monthly Progress Report No. 80
9490541
ANCHOR QEA
integral consulting inc.
Date: 07-15-2016
CERCLA Docket No. 06-03-10 Data Files
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